



Postfach 10 13 49  
D - 44713 Bochum  
Blumenfeldstr. 18  
D - 44795 Bochum

Telefon (0234) 4595 - 0  
Telefax (0234) 43 23 87

## Abnahmeprüfzeugnis DIN EN 10204 - 3.1B

Inspection certificate

**Besteller:** Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt  
**Customer:**

**Bestell-Nr.:** Lurgi Job - No.: 69690-10  
**Order no.:** Lurgi OGC PO.-No.: 4567569-000 to -001/1.69690/136

**Project Name :** 2nd Zagros Methanol Plant - Iran

**Auftrag-Nr.:** HH - 02535  
**Job no.:**

**Lieferumfang / range:**

| Pos   | Stck.<br>pcs. | Gegenstand<br>object    | DN | PN     | Werkstoff<br>material | Bemerkung<br>comment        |
|-------|---------------|-------------------------|----|--------|-----------------------|-----------------------------|
| 00280 | 3             | Globe valve<br>RB BB SW | 1" | Cl.800 | ASTMA A105N           | Valve Ident - No.: " V350 " |

**Auslegung + Prüfung nach** API 602 - BS EN ISO 15761, API 598 / BS EN 12266-1  
**Design and tests acc. To** ASME B16.34 - B16.25 - B16.11 - B1.20.1

**Sicht- und Funktionsprüfung:** o.k.  
**visual and functional test:**

**Festigkeits-/Dichtheitsprüfung:** Festigkeit / shell test = 211 bar Wasser / water (60 sec)  
**strength-/tightness-test:** Dichtheit Sitz / seat = 156 bar Wasser / water (60 sec)  
Rückdichtung / backseat = 156 bar Wasser / water (60 sec)  
Dichtheit Sitz / seat = 6 bar Luft / air (60 sec)

**Prüfungsergebnis:** ohne Beanstandung !  
**result:** no complaint !

*i.A. Walter Glass*  
Bochum, den 28.02.2005 - WG KLAUS UNION GmbH & Co. KG  
Werksachverständiger:  
Manufacturer's authorized inspector: Walter Glass

**Anlage:** Dokumentation gemäß Material-Dokumentationsdeckblatt  
**enclosure** Documentation acc. to material cover sheet



# Materialdokumentations - Deckblatt

## Material Cover Sheet

|              |            |
|--------------|------------|
| Datum / Date | 25.02.2005 |
|--------------|------------|

Seite / Page 1

Sachbearbeiter  
W. Glass

Person in charge

W. Glass

W. Glass  
Walt Gß

**Kommissions-Nr. /  
Reference No.**

**Lurqi Job - No.:** **69690-10**

Lurqi OGC PO, - No.: 4567569 - 000 to -001/ 1.69690 / 136

HH-02535

Project Name: 2nd Zagros Methanol Plant - Iran

[illegible]

**Evasi e Castelnuovo s.r.l.**

Via Carlo Porta, 1 - 23861 CESANA BRIANZA (LC)  
Tel. 031/65.59.36 - Fax 031/65.66.27  
Cod. Fisc. e Part. IVA 00209790138  
Reg.Soc. Trib. Lecco n. 5932 - C.C.I.A. 121373

Spett.

DOUGLAS CHERO SPA

LOC. PRADAGLIE

29013 CARPANETO PIACENTINO

PC

**CERTIFICATO DI COLLAUDO/INSPECTION CERTIFICATE**  
**UNI EN 10204 3.1 B**

**SISTEMA QUALITA' CERTIFICATO UNI EN ISO 9001/2000**  
**QUALITY SYSTEM CERTIFIED UNI EN ISO 9001/2000**

|                              |            |
|------------------------------|------------|
| N.                           | DATA/DATE  |
| 000080                       | 04-03-2004 |
| D.D.T. / DELIVERY NOTE<br>N. | DATA/DATE  |

|                                |                             |                                 |                     |                                                  |
|--------------------------------|-----------------------------|---------------------------------|---------------------|--------------------------------------------------|
| COLATA /HEAT N.<br>AT<br>11324 | MATERIALE/MATERIAL<br>A105/ | ACCIAIERIA/STEEL PLANT<br>LEALI | N.QUANTITY<br>5.450 | DESCRIZIONE/DESCRIPTION<br>CORPI GR.VS 1" 800 BB |
|--------------------------------|-----------------------------|---------------------------------|---------------------|--------------------------------------------------|

**ANALISI CHIMICA / CHEMICAL ANALYSIS**

|       |       |       |       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C     | Mn    | Si    | P     | S     | Cr    | Ni    | Mo    | Ti    | V     | Cu    | Al    |
| 0,190 | 0,880 | 0,230 | 0,012 | 0,010 | 0,130 | 0,130 | 0,020 | 0,003 | 0,001 | 0,290 | 0,031 |
| Sn    | Nb    | N     | Fe    | W     | Ta    | Co    | Ca    | B     | Sb    |       | CE    |
| 0,016 | 0,001 |       |       |       |       |       |       |       |       |       |       |

**PROVE MECCANICHE/MECHANICAL TESTS**

|                                         |                                          |                  |                   |
|-----------------------------------------|------------------------------------------|------------------|-------------------|
| RS-YIELD<br>N./mm <sup>2</sup><br>344,0 | R-TENSILE<br>N./mm <sup>2</sup><br>524,0 | A%-ELONG<br>29,0 | Z%-REDUCT<br>59,0 |
|-----------------------------------------|------------------------------------------|------------------|-------------------|

**IMPACT TEST - KV - J**

|        |        |        |         |
|--------|--------|--------|---------|
| TEST 1 | TEST 2 | TEST 3 | TEMP.°C |
|        |        |        |         |

|                      |              |                  |                      |     |
|----------------------|--------------|------------------|----------------------|-----|
| TRADE<br>MARK<br>EXL | HEAT<br>CODE | MATERIAL<br>CODE | MATERIAL<br>TYPE NR. | DWG |
|----------------------|--------------|------------------|----------------------|-----|

**09 MAR. 2004**  
**DOUGLAS CHERO Spa**

Quality Assurance .....

P.C. STEFANO VITTORIO

Signo .....

**TRATTAMENTO TERMICO / HEAT TREATMENT**

|                                |                   |                  |                       |          |
|--------------------------------|-------------------|------------------|-----------------------|----------|
| DESCRIPTION<br>NORMALIZZAZIONE | HEATING °C<br>900 | STAY TIME<br>2,3 | COOLING<br>ARIA CALMA | HARDNESS |
|--------------------------------|-------------------|------------------|-----------------------|----------|

- 1) The result of chemical analysis is a true and correct copy of the mill certificate issued by the manufacturer of the steel employed, or by the laboratory which has determined it.  
Il risultato dell'analisi chimica è la corretta trascrizione del certificato di colata emesso dall'acciaieria o dal laboratorio che li ha rilevati
- 2) Visual and dimensional control satisfactory.  
Controlli visivi e dimensionali soddisfacenti.
- 3) Results of test effected are in conformance with order's specifications.  
I risultati delle prove eseguite sono conformi alle specifiche richieste.
- 4) We confirm that materials used for the manufacture of supplied products are in conformance with the Directive 97/23/CE (PED); in particular with annex I par. 4 "Materiali".  
Confermiamo che i materiali usati per lo stampaggio dei prodotti forniti sono conformi alla Direttiva 97/23/CE (PED) e particolarmente all'allegato I par. 4 "Materiali".

|                        |
|------------------------|
| APPROVATO/APPROVED     |
| COLLAUDATORE/INSPECTOR |
| EMESSO/ISSUED          |

**EVASI E CASTELNUOVO s.r.l.**  
**STAMPERIA IN FERRO E ACCIAIO**



**UGINE-SAVOIE IMPHY**  
Groupe Arcelor

FRANCE

UGINE

Ugine Productive  
Hersteller  
Manufacturer

F 73403 UGINE CEDEX

Tel : 04.79.89.30.10  
Fax : 04.79.89.30.11

4 - N° de commande sans-Work order number  
N° de 46233 FUGE TEJE 1/1 2WN01000 X

CERTIFICAT DE RECEPTION 3.1.B  
INSPECTION CERTIFICATE B  
ABNAHMEPRUEFZEUGNIS B

EN 10204 / 3.1.B

Produit  
Erzeugnisform  
Product

IMA4006/TR BARRE A CHAUD RONDE TOL.13 TRAITEE

Client et/ou destinataire - Besteller und/oder Empfänger - Purchaser and/or Consignee

UGINE SAVOIE IMPHY

N. de commande client - Kundenbestellnummer - Purchase order number

303131984

Normes et spécifications techniques - Statuten und Prüfbedingungen - Quality and Specifications

IMA4006

IMA4006/TR

ASTM A182

F6A/CL3

RI4006-QTC3-1X REV.A DU 06/11/2002

Etat de livraison - Lieferzustand - As delivered (1)

TREMPE ET REVENU

Treatment de référence - Probenanfertigungsbehandlung - Treatment of test samples (1)

| Identification du produit<br>Erzeugnis Bezeichnung-Product Identification |                                    |                                      | Nombre<br>Stückzahl<br>Pieces Qty | Profil<br>Profil<br>Shape | Dimension<br>Abmessung<br>Dimension | Longueur<br>Länge<br>Length | Masse<br>Gewicht<br>Weight |
|---------------------------------------------------------------------------|------------------------------------|--------------------------------------|-----------------------------------|---------------------------|-------------------------------------|-----------------------------|----------------------------|
| N. de cde usine<br>Werkbestellnummer<br>Works order number                | N. de poste<br>Posti Nr<br>Item No | N. de Coudé<br>Schmidt Nr<br>Heat No | 18                                | 19                        | 20                                  | 21                          | 22                         |
| 15                                                                        | 17                                 | 16                                   |                                   |                           |                                     |                             |                            |
| 2WN01 000                                                                 | 322021                             |                                      | 29 ROND                           |                           | 32,000                              |                             | 1004 KG                    |

| N. de Prélevement<br>Probennummer<br>Test N. |     | Traction - Zugversuch - Tensile test                  |                                                                | Résilience - Kerbschlagzähigkeit - Notch Toughness |      | Dureté<br>Härte<br>Hardness |      | Type<br>Form<br>Type |      | Valeurs individuelles<br>Einzelwerte<br>Individual Values |      | Moyenne<br>Mittelwerte<br>Average |      | Dureté<br>Härte<br>Hardness |      |
|----------------------------------------------|-----|-------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------|------|-----------------------------|------|----------------------|------|-----------------------------------------------------------|------|-----------------------------------|------|-----------------------------|------|
| (3)                                          | (4) | Limite d'Elasticité<br>Streckgrenze<br>Yield Strength | Résistance<br>la traction<br>Zugfestigkeit<br>Tensile strength | (31)                                               | (32) | (33)                        | (34) | (35)                 | (36) | (37)                                                      | (38) | (39)                              | (40) | (41)                        | (42) |
| 24                                           | 25  | 0.2%<br>26A                                           | 1%<br>26B                                                      | 27                                                 | 28   | 29                          | 30   | 31                   | 32   | 33                                                        | 34   | 35                                | 36   | 37                          | 38   |
| Min                                          | 20  | MPA                                                   | MPA                                                            | MPA                                                | %    | %                           |      |                      |      |                                                           |      |                                   |      | HB                          |      |
| Max                                          |     | 585                                                   |                                                                | 760                                                | 15   | 35                          |      |                      |      |                                                           |      |                                   |      | 235                         |      |
|                                              |     |                                                       |                                                                |                                                    |      |                             |      |                      |      |                                                           |      |                                   |      | 302                         |      |
| (4)                                          |     | 701                                                   |                                                                | 820                                                | 19   | 69                          |      |                      |      |                                                           |      |                                   |      | 247                         |      |
| (5)                                          |     |                                                       |                                                                |                                                    |      |                             |      |                      |      |                                                           |      |                                   |      |                             |      |

| 39A<br>N. de Prélevement<br>Probennummer<br>Test N. |        | 40<br>Demande<br>Vorschlag<br>Request | 41<br>Analyse<br>Prüfung<br>Check Analysis | 42<br>C | 43<br>SI | 44<br>MN | 45<br>NI | 46<br>CR | 47<br>N | 48<br>S | 49<br>P | 50<br>CO |
|-----------------------------------------------------|--------|---------------------------------------|--------------------------------------------|---------|----------|----------|----------|----------|---------|---------|---------|----------|
| Min                                                 |        | 0,080                                 |                                            |         |          |          |          | 11,50    |         |         |         |          |
| Max                                                 |        | 0,150                                 |                                            | 1,00    | 1,00     | 0,50     | 13,50    |          | 0,030   | 0,040   |         |          |
| N. de Coudé<br>Schmidt Nr<br>Heat N.                | 322021 | 0,118                                 |                                            | 0,33    | 0,37     | 0,34     | 12,11    | 0,051    | 0,022   | 0,020   | 0,024   |          |

| 38<br>Mode<br>d'élaboration<br>Erzeugnis<br>hergestellt<br>Manufacturing<br>process |  | 51<br>CU | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |
|-------------------------------------------------------------------------------------|--|----------|----|----|----|----|----|----|----|----|----|
| Min                                                                                 |  |          |    |    |    |    |    |    |    |    |    |
| Max                                                                                 |  | 0,125    |    |    |    |    |    |    |    |    |    |

AISI 410  
X12CR13 NF EN10088-3 1.4006

23 MAR. 2004

DOUGLAS CHERO Spa

Quality Assurance .....

P.C. STEVANI VITTORIO

Sign .....

|                                                                     |                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                               |
|---------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| (3) L = Long<br>Länge - Long<br>T = Trans<br>Quer-Transvers         | (1) TH = Trempé à l'eau - Wasserhärten - Waterquench<br>TH = Trempé à l'huile - Öl Härten - Oil Quench<br>A = Hypertemp - Lösungsgelöst - Solution annealed | R = Revenu - Anlassen - Tempered<br>RT = Recuit - Gehtecht - Annealed<br>TRM = Recuit mail - Weichgehtecht - Mail annealed                                                                                                                                                                                                                                                                                                                                                                           | Ugine, le 16-06-03<br>L'Agent Réceptionnaire de l'usine<br>Der Werkseingangsbeauftragte<br>The Work Inspector |
| (4) A l'état de référence<br>Zustand Zustand<br>Reference condition | (5) A l'état de livraison<br>in state of deliver                                                                                                            | Contrôles de marquage, d'aspect et de dimension : satisfaisants<br>Beschriftung, Beschäftigung und Abmessung : ohne Beanstandung<br>Marking, inspection and measurement : without objection<br>Nous certifions que les produits énumérés ci-dessus sont conformes aux prescriptions de la commande<br>Wir bestätigen hiermit dass die oben genannten Erzeugnisse den Bestellschreiben entsprechen<br>We certify hereby that the above mentioned products are consistent with the order prescriptions |                                                                                                               |

# MECCANICHE MORANDI s.r.l.

VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.949 • Fax 0331.302.948  
E-mail: mecmorandi@libero.it Codice Fiscale e Partita IVA 01779110129

CERTIFICATO DI COLLAUDO  
Inspection certificate

26738

N°6128/DCH DATE-16.11.04

CLIENTE- DOUGLAS CHERO Spa  
Customer

ORDINE-242000  
Order

BOLLA CONSEGNA N-3750  
Delivery note

## DESCRIZIONE DEL MATERIALE

## MATERIAL DESCRIPTION

| Item | Quantity | Article             | Material                | Heat n. |
|------|----------|---------------------|-------------------------|---------|
| 1    | 6733     | VITI TE M 12 X 30,5 | B7<br>ASTM A 193/A 193M | AR4273  |

## ANALISI CHIMICA

## CHEMICAL ANALYSIS

| %        | C         | Mn   | Si   | Cr   | Mo   | S     | P     |
|----------|-----------|------|------|------|------|-------|-------|
| REQUIRED | min. 0.37 | 0.65 | 0.15 | 0.75 | 0.15 |       |       |
| VALUE    | max. 0.49 | 1.10 | 0.35 | 1.20 | 0.25 | 0.040 | 0.035 |
| HEAT n.  | 0,44      | 0,77 | 0,26 | 1,06 | 0,23 | 0,005 | 0,007 |
| AR4273   |           |      |      |      |      |       |       |

## CARATTERISTICHE MECCANICHE

## MECHANICAL REQUIREMENTS

|          | Rm.<br>min.<br>860 MPa | Rp.(0,2)<br>min.<br>720 MPa | A4<br>min.<br>16% | Z.<br>min.<br>50% | Hardness<br>max<br>35 HRC |
|----------|------------------------|-----------------------------|-------------------|-------------------|---------------------------|
| REQUIRED |                        |                             |                   |                   |                           |
| ACTUAL   | 1032                   | 945                         | 17,5              | 53,5              | 32                        |
| VALUE    |                        |                             |                   |                   |                           |

## HEAT TREATMENT

Quenched at : 860 °C in oil  
Tempering : 2 hours at 593 °C min.

Visual and dimensional test = SATISFACTORY

This certificate has been tested in according with the specification included in your order.

## QUALITY CONTROL

- CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

22 NOV. 2004  
DOUGLAS CHERO Spa

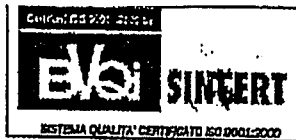
Quality Assurance .....  
P.C. STEFANO VITTORIO  
Allen .....  
.....

MECCANICHE MORANDI srl  
Via Magenta n. 27  
21015 LONATE POZZOLO (VA)

# Bonomi s.r.l

## STAMPAGGIO A CALDO DELL'ACCIAIO

23861 CESANA BRIANZA (Le) Via Carlo Porta, 8  
☎ 031/856798 ☎ 031/857597



CERTIFICATO N°143457

Partita I.V.A. 02418370132  
R.I. Lecco N. 15934  
R.E.A. Lecco N. 288235

002590200

TEST CERTIFICATE N° 040349  
CERTIFICATO DI COLLAUDO  
3.1B-AS-TO- SECONDO  
UNI EN 10204  
DATA: 04/06/2004

Spett.le Ditta  
DOUGLAS CHERO Spa  
Loc. Pradaglie  
29013 CARPANETO P.NO (Pc)

|                                                         |  |                       |                                                             |       |                                                    |                                            |                            |                                 |                   |       |       |       |
|---------------------------------------------------------|--|-----------------------|-------------------------------------------------------------|-------|----------------------------------------------------|--------------------------------------------|----------------------------|---------------------------------|-------------------|-------|-------|-------|
| Mod. 28/1<br>CUSTOMER ORDER - ORDINE CLIENTE            |  | P.O.                  | DOCUMENTO DI TRASPORTO                                      |       | INVOICE-FATTURA                                    |                                            |                            |                                 |                   |       |       |       |
| 240741 pos. 1                                           |  |                       | 139 del 25/05/2004                                          |       |                                                    |                                            |                            |                                 |                   |       |       |       |
| DESCRIPTION OF PARTICULAR - DESCRIZIONE DEL PARTICOLARE |  |                       | TYPE AND MATERIAL SPECIFICATIONS-TIPO E SPECIFICA MATERIALE |       |                                                    |                                            |                            |                                 |                   |       |       |       |
| BONNET                                                  |  |                       | ASTM A105N                                                  |       |                                                    |                                            |                            |                                 |                   |       |       |       |
| NUMERO COLATA<br>HEAT NUMBER                            |  |                       | CHEMICAL ANALYSIS - ANALISI CHIMICA                         |       |                                                    |                                            |                            |                                 |                   |       |       |       |
| 1T 7629                                                 |  |                       | C                                                           | SI    | Mn                                                 | P                                          | S                          | Cu                              | Cr                | Ni    | Mo    | V     |
| STELL.MILL.<br>ACCIAIERIA                               |  |                       | 0.200                                                       | 0.240 | 0.880                                              | 0.011                                      | 0.009                      | 0.120                           | 0.050             | 0.100 | 0.010 | 0.001 |
| ST.M. CERT. N.<br>CERT. ACC. N.                         |  |                       | Al                                                          | Sn    | Ti                                                 | Nb                                         | C.E.                       |                                 |                   |       |       |       |
| HX 8028                                                 |  |                       | 0.021                                                       | 0.006 | 0.003                                              | 0.001                                      | 0.370                      |                                 |                   |       |       |       |
| HEAT CODE ON FORGING<br>CODICE COLATA                   |  | DISEGNO DEL FORGIATO. | QUANTITY<br>QUANTITA'                                       |       | MECHANICAL PROPERTIES - CARATTERISTICHE MECCANICHE |                                            |                            |                                 |                   |       |       |       |
| BDCO                                                    |  | 4/8                   | 7.800                                                       |       | YIELD<br>STRENGTH<br>P.S.I.<br>SHERVAL.<br>N/mm2   | TENS.<br>STRENGTH<br>P.S.I.<br>ROTT. N/mm2 | ELONG<br>2" 50<br>ALLUNG % | RED OF<br>AREA<br>%<br>CONTRAZ. | H.B.              |       |       |       |
|                                                         |  |                       |                                                             |       | 346                                                | 522                                        | 30,00                      | 61,06                           | 159<br>159<br>156 |       |       |       |
| HEAT TREATMENT - TRATTAMENTO TERMICO                    |  |                       |                                                             |       |                                                    |                                            |                            |                                 |                   |       |       |       |
| Normalizing                                             |  |                       |                                                             |       |                                                    |                                            |                            |                                 |                   |       |       |       |

### REMARKS

- 1) The result of chemical analysis is a true and correct copy of the mill certificate issued, by the manufacturer of the steel employed, or by the laboratory which has determined it.  
\* I risultati delle analisi chimiche è la corretta trascrizione del certificato di colata emesso dall'acciaieria o dal laboratorio che li ha rilevati.
- 2) The material or components shipped under the above order number did not come in direct contact with mercury or any of its components; or with any mercury containing devices employing a single boundary of containment, during the manufacturing process inspection or storage.  
\*\* Il materiale o i particolari spediti per questi ordini non sono mai venuti a contatto diretto con mercurio o con elementi contenenti mercurio durante la fase di lavorazione, controllo o immagazzinamento.

I certify these tests to be correct as contained in the records of the company  
certifico che tutti i dati sono corretti e uguali a quelli registrati presso Bonomi

11 GIU. 2004

DOUGLAS CHERO Spa

Quality Assurance .....

P.C. STEFANI VITTORIO

Sign .....

Q.A. OFFICE  
OFFICE QUALITA'

Bucchi Rosalba

**Valbruna S.p.A.**

6100 VICENZA (Italy) - Via dell'Industria, 25 r.l.

Stato: 36100 BELLUNO (Italy) - Via Al. Volta, 4

Clienti / Customers / Clients

Produttore: **ACCIAIERIE VALBRUNA S.P.A.**  
Hersteller/Usine producer

Oggetto Prove: - Ricolto lavorabile Trafilato  
Prüfungsbefund/Item inspected/Findings

Avviso di Spedizione: A-0104014062  
Unterwegs/Packing Receipt

Ordine nr: DEL 29.01.04  
Bestell/Nr order/Commande

Tipo di Elaborazione: E+AOD  
Brennverfahren/Working process/Mode d'élaboration

Certificato nr: MEST105850/2004/  
Prüfung/Zertifiz.

Conferma ordine nr: M104000714  
Werkz.Nr Order/Nr.

Marchio di Fabbrica:  
Zeichen des Unternehmens  
Trade mark  
Sigle de l'usine producteur

Funzione del Collaudatore:  
Stempel des Werkstoffverständigen  
Inspector's stamp/Folien der Längsprobe

#### Specifiche:

Anforderungen / Requirements / Exigences

ASTM A182 2000C S41000 CLASS2 (a)  
(a) Chemical analysis only and mech. properties (for ASTM A182(M))

Qualità: S41000

Werkstoff / Material

Marca: VAL1

Mechanische Eigenschaften/Brand/Marken

Punzonatura:

Kennzeichnung/Marking/Marquage

| Pos. nr.<br>Pos. nr.<br>Nr. de poste | Oggetto<br>Description<br>Description du produit | Dimensioni - mm<br>Abmessungen<br>Dimensions<br>Dimensions | Tolleranza<br>Toleranz<br>Tolérance | Lunghezza - mm<br>Länge<br>Longueur | Colata<br>Schmelze<br>Matière | Pezzi<br>Stücke<br>Pièces | Peso - KG<br>Gewicht<br>Poids | Lotto nr.<br>Losnr.<br>Lot nr. |
|--------------------------------------|--------------------------------------------------|------------------------------------------------------------|-------------------------------------|-------------------------------------|-------------------------------|---------------------------|-------------------------------|--------------------------------|
| 0010                                 | Tondo                                            | 14,000                                                     | H9-MIN                              | 3900 / 4000                         | 237840                        |                           | 5995,0<br><i>Mol</i>          | 403302310                      |

Sono state soddisfatte tutte le condizioni richieste

Die genannten Anforderungen sind in Anlage erfüllt  
The material has been furnished in accordance with the requirements  
Le matériel a été trouvé conforme aux exigences

| TEST                                                               | Provenienza<br>Lieferanten<br>From<br>From<br>From | °C         | Pos.<br>Stag.<br>Position<br>Position | Snervamento<br>Dehne<br>Yield Stress<br>Yield strength<br>Rp 0,2% | Snervamento<br>Dehne<br>Yield Stress<br>Yield strength<br>Rp 0,2% | Resistenza<br>Zugfestigkeit<br>Tensile strength<br>Resistenz à traction<br>Rm | Allungamento<br>Bruchdehnung<br>Elongation<br>Allongement<br>E 4d | Strizione<br>Bruchdehnung<br>Reduction of area<br>Striction<br>RA | Resilienza<br>Kerbschlagenergie<br>Impact Value<br>Resilience | Durezza<br>Härte<br>Hardness<br>Dureté<br>HB |
|--------------------------------------------------------------------|----------------------------------------------------|------------|---------------------------------------|-------------------------------------------------------------------|-------------------------------------------------------------------|-------------------------------------------------------------------------------|-------------------------------------------------------------------|-------------------------------------------------------------------|---------------------------------------------------------------|----------------------------------------------|
| Valori richiesti 1<br>Anforderungen/Bedingungen<br>Valeur demandée |                                                    | min<br>max |                                       | 380                                                               | -                                                                 | 585                                                                           | - 18                                                              | - 35                                                              | -                                                             | 157<br>229                                   |
| A                                                                  | 12.5                                               | 20         | L                                     | 610                                                               |                                                                   | 698                                                                           | 22                                                                | 68                                                                |                                                               | 215                                          |

1) Längsbedeutung, Querschnittswerte, T-Temperatur

#### Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata:<br>Schmelze/<br>Coulée | - min<br>0,15 max | 1,00 | 1,00 | 11,50<br>13,50 | 0,50 | 0,040 | 0,030 |  |  |  |  |  |  |  |
|--------------------------------|-------------------|------|------|----------------|------|-------|-------|--|--|--|--|--|--|--|
|                                | C %               | Si % | Mn % | Cr %           | Ni % | P %   | S %   |  |  |  |  |  |  |  |
| 237840                         | 0,14              | 0,36 | 0,70 | 12,55          | 0,27 | 0,017 | 0,024 |  |  |  |  |  |  |  |

Made in Italy No welding or weld repair Material free from Mercury or radio-activity contamination  
The Quality Management System is Certified acc. Pressure Equipment Directive (97/23/EC) Annex 1, 2, 4.3 by TÜV and LLOYD'S

**29 GIU. 2004**  
**DOUGLAS CHERO Spa**

Quality Assurance .....  
P.C. STEFANI VITTORIO  
Sign: .....

Vicenza, 17/05/04  
Mod. VCO 12

Il collaudatore di stabilimento / der Werkstoffverständiger / Works Inspector / L'agent d'usine  
M. Rizzotto

Pagina - 1 di 1



FRANCE

Usine Producteur  
Hersteller  
Manufaktur

UGINE

F 73403 UGINE CEDEX

Tél : 04.78.89.30.30  
Fax : 04.78.89.30.51

|                  |                                                                                                     |    |                                                                                            |
|------------------|-----------------------------------------------------------------------------------------------------|----|--------------------------------------------------------------------------------------------|
| 4                | N.° No 86535                                                                                        | 11 | N.° de commande usine - Werkbestellnummer - Works order number<br>FUGE TEST 01/01 8Z141100 |
| 3                | CERTIFICATO COLLAUDO DI ACCETTAZIONE B<br>CERTIFICAT DE RECEPTION 3.1.B<br>INSPECTION CERTIFICATE B |    |                                                                                            |
| EN 10204 / 3.1.B |                                                                                                     |    |                                                                                            |

|   |                                                                                 |   |
|---|---------------------------------------------------------------------------------|---|
| 5 | Produit<br>Erzeugnisform<br>Product<br>IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE | 6 |
|---|---------------------------------------------------------------------------------|---|

|                                                                                      |                                                                       |
|--------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| Client / au destinataire - Besteller und/oder Empfänger - Purchaser and/or Consignee | N.° de commande client - Kundenbestellnummer - Purchaser order number |
| TECNOMECCANICA SRL                                                                   | 364                                                                   |

|                                                                                                  |     |           |            |
|--------------------------------------------------------------------------------------------------|-----|-----------|------------|
| Nuance et spécifications techniques - Staisoren und Prüfbedingungen - Quality and Specifications |     |           |            |
| IMA4006                                                                                          | 410 | SAISI 410 | UNS S41000 |
| SPEC. SDA 09 DU 20/11/01 (SAUF MN)                                                               |     |           |            |
| Etat de livraison - Lieferzustand - As delivered (1)                                             |     |           |            |
| TEMPRATO RINVENUTO                                                                               |     |           |            |

|    |    |
|----|----|
| 13 | 14 |
|----|----|

|                                                                                                                                                                                                      |  |                                   |  |                           |                                      |                             |                            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------|--|---------------------------|--------------------------------------|-----------------------------|----------------------------|
| Dénomination du produit<br>Erzeugnis Benennung - Product Identification<br>N.° de cde usine N.° de poste N.° de Coulée<br>Werkbestellnummer Post Nr Schmelz Nr<br>Works order number Post No Heat No |  | Nombre<br>Stückzahl<br>Pieces Nbr |  | Profil<br>Profil<br>Shape | Dimension<br>Ausmessung<br>Dimension | Longueur<br>Länge<br>Length | Masse<br>Gewicht<br>Weight |
| 8Z141 100 404019                                                                                                                                                                                     |  | 100 TONDO                         |  |                           | 24,000                               |                             | 1057 KG                    |

|      |                                 |                                                           |                                                       |                  |                                                                  |         |                                   |                      |                                                        |                                 |                                  |                                    |
|------|---------------------------------|-----------------------------------------------------------|-------------------------------------------------------|------------------|------------------------------------------------------------------|---------|-----------------------------------|----------------------|--------------------------------------------------------|---------------------------------|----------------------------------|------------------------------------|
| 39 B | Demande<br>Vorschlag<br>Request | Température d'essai<br>Prüftemperatur<br>Test Temperature | Traction - Zugversuch - Tensile test                  |                  |                                                                  |         | Durée<br>Härte<br>Hardness<br>(4) | Type<br>Form<br>Type | Résistance<br>Zugfestigkeit<br>Tensile strength<br>(3) | Choc<br>Schlag<br>Impact<br>(5) | Moyenne<br>Mittelwert<br>Average | Dureté<br>Härte<br>Hardness<br>(6) |
|      |                                 |                                                           | Limite d'Elasticité<br>Streckgrenze<br>Yield Strength |                  | Résistance<br>à la traction<br>Zugfestigkeit<br>Tensile strength |         |                                   |                      |                                                        |                                 |                                  |                                    |
|      |                                 |                                                           | 0,2%<br>25A<br>MPA                                    | 1%<br>25B<br>MPA | 27<br>MPA                                                        | 28<br>% |                                   |                      |                                                        |                                 |                                  |                                    |
| Min  | 20                              |                                                           | 275                                                   |                  | 585                                                              | 20      | 45                                |                      |                                                        |                                 |                                  |                                    |
| Max  |                                 |                                                           |                                                       |                  |                                                                  |         |                                   |                      |                                                        |                                 |                                  | 237                                |

|     |     |     |    |    |     |
|-----|-----|-----|----|----|-----|
| (4) | 604 | 692 | 21 | 70 | 210 |
| (5) |     |     |    |    |     |

|                                               |                                 |       |      |      |      |       |       |       |    |    |
|-----------------------------------------------|---------------------------------|-------|------|------|------|-------|-------|-------|----|----|
| 39 A                                          | Demande<br>Vorschlag<br>Request | 42    | 43   | 44   | 45   | 46    | 47    | 48    | 49 | 50 |
| N.° de Prélèvement<br>Probennummer<br>Test N. | Min                             | C     | SI   | MN   | NI   | CR    | S     | P.    |    |    |
| N.° de Coulée<br>Schmelz Nr<br>Heat N.        | Max                             | 0,150 | 0,60 | 0,60 |      | 11,50 | 0,030 | 0,040 |    |    |
| 04019                                         |                                 | 0,108 | 0,45 | 0,40 | 0,36 | 12,10 | 0,023 | 0,018 |    |    |

|                                                             |                                 |    |    |    |    |    |    |    |    |    |    |
|-------------------------------------------------------------|---------------------------------|----|----|----|----|----|----|----|----|----|----|
| 38                                                          | Demande<br>Vorschlag<br>Request | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |
| Mode<br>Herstellung<br>Herstellung<br>Manufacturing process | Min                             |    |    |    |    |    |    |    |    |    |    |
| Electrique<br>Elektrisch<br>Electric                        | Max                             |    |    |    |    |    |    |    |    |    |    |

IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE

DOUGLAS CHERO Spa

Quality Assurance .....

P.C. STEFANO VITTORIO

Sign. ....

|                                                                |                                                                                                                                                               |                                                                                                                       |                                                                                                           |
|----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| (3) L = Long<br>Länge - Long<br>T = Travers<br>Quer-Transverso | (1) TE = Trempé à l'eau - Wasserhaenen - Waterquench<br>TH = Trempé à l'huile - Ölhaenen - Oil Quench<br>A = Hypertrempé - Lösungsgegluht - Solution annealed | R = Revenu - Anlassen - Tempered<br>RT = Reçuk - Geglüht - Annealed<br>TRM = Reçuk maxi - Weichgegluht - Max annealed | Ugine, le 18-02-04<br>L'Agent Réceptionnaire de l'usine<br>Der Werksechseninsandige<br>The Work Inspector |
|----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|

|                                                                                  |                                                                               |                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                  |                |
|----------------------------------------------------------------------------------|-------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| (4) A l'état de référence<br>Zum Bezug Zustand<br>At reference condition<br>60 A | (5) A l'état de livraison<br>In Lieferzustand<br>In state of delivery<br>60 B | Contrôles de marquage, d'aspect et de dimensions : satisfaisants<br>Bezeichnung, Beschöpfung und Ausmessung : ohne Beanstandung<br>Marking, Inspection and measurement : without objection<br>62 | Nous certifions que les produits énumérés ci-dessus sont conformes aux prescriptions de la commande<br>Wir bestätigen hiermit dass die obengenannten Erzeugnisse den Bestellungsbedingungen entsprechen<br>We certify hereby that the above mentioned products are consistent with the order prescriptions<br>65 | H. Mayet<br>63 |
|----------------------------------------------------------------------------------|-------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|



Postfach 10 13 49  
D - 44713 Bochum  
Blumenfeldstr. 18  
D - 44795 Bochum

Telefon (0234) 4595 - 0  
Telefax (0234) 43 23 87

## Abnahmeprüfzeugnis DIN EN 10204 - 3.1B

Inspection certificate

**Besteller:**  
Customer:

*Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt*

**Bestell-Nr.:**  
Order no.:

*Lurgi Job - No.: 69690-10*  
*Lurgi OGC PO.-No.: 4567569-000 to -001/1.69690/136*

**Project Name :**

*2nd Zagros Methanol Plant - Iran*

**Auftrag-Nr.:**  
Job no.:

*HH - 02535*

**Lieferumfang / range:**

| Pos   | Stck.<br>pcs. | Gegenstand<br>object                          | DN | PN     | Werkstoff<br>material | Bemerkung<br>comment        |
|-------|---------------|-----------------------------------------------|----|--------|-----------------------|-----------------------------|
| 00290 | 9             | Globe valve<br>RB BB SW<br>Seat + disk stell. | 1" | Cl.800 | ASTMA A105N           | Valve Ident - No.: " V305 " |

**Auslegung + Prüfung nach**  
Design and tests acc. To

*API 602 - BS EN ISO 15761, API 598 / BS EN 12266-1*  
*ASME B16.34 - B16.25 - B16.11 - B1.20.1*

**Sicht- und Funktionsprüfung:**  
visual and functional test:

*o.k.*

**Festigkeits-/Dichtheitsprüfung:**  
strength-/tightness-test:

*Festigkeit / shell test = 211 bar Wasser / water (60 sec)*  
*Dichtheit Sitz / seat = 156 bar Wasser / water (60 sec)*  
*Rückdichtung / backseat = 156 bar Wasser / water (60 sec)*  
*Dichtheit Sitz / seat = 6 bar Luft / air (60 sec)*

**Prüfungsergebnis:**  
result:

*ohne Beanstandung !*  
*no complaint !*

*W. A. Walter GfB*

Bochum, den 28.02.2005 - WG **KLAUS UNION GmbH & Co. KG**

Werksachverständiger:

Manufacturer's authorized inspector: Walter Glass

**Anlage:** *Dokumentation gemäß Material-Dokumentationsdeckblatt*  
enclosure *Documentation acc. to material cover sheet*



|              |            |
|--------------|------------|
| Datum / Date | 25.02.2005 |
|--------------|------------|

Seite / Page 1

Sachbearbeiter

W. Glass

W. Glass  
Walter GFB

**Kommissions-Nr. /  
Reference No.**

**Lurgj Job - No.: 69690-10**  
**Lurqi OGC PO.- No.: 4567569 - 000 to -001/ 1.69690 / 136**

HH-02535

Project Name: 2nd Zagros Methanol Plant - Iran

[illegible]

**FEAT INDUSTRIALE**

divisione della Feat Group S.p.A.

**SEDE LEGALE:**20122 MILANO - C.so Di Porta Romana, 46  
Capitale sociale L. 15.000.000.000 Int. vers.  
Reg. Impr. Milano 255795 - R.E.A. Milano 1211374

Codice Fiscale e Partita IVA 08203090157

Codice Identif. IVA CEE IT 08203090157

**UFFICI AMMINISTRATIVI:**I - 23842 BOSISIO PARINI (LC) - Via del Lavoro  
Tel. (031) 878.187 - Fax (031) 878.176 - Cod. Mecc. M240750**STABILIMENTO E UFFICI COMMERCIALI:**I - 23881 CESANA BRIANZA (LC) - Via G. Parini, 30  
Tel. (031) 859.1 - Fax (031) 859.218 - HTTP://www.featgroup.it

002059100

Certificato

Data

Pagina

2002/3000015

07/01/2002

1

DOUGLAS CHERO S.P.A.

LOCALITA' PRADAGLIE

IN ACCORDO A BS EN 10204 3.1B

29013 CARPANETO PIACENTINO

PC

|                |                   |            |           |
|----------------|-------------------|------------|-----------|
| Ordine cliente | Bolla             | Fattura    | Quantita' |
| 211663         | 12002/000/0030008 | 10 0030008 | 3.219,00  |

|               |             |
|---------------|-------------|
| Articolo Feat | Descrizione |
| 292001001003  | ICORPO 4/9  |

|                     |                                      |
|---------------------|--------------------------------------|
| Cod. Stamp./N. Col. | Tipo Materiale e Specifica           |
| BPA                 | IA105 ASTM Last Edition - C 0.22 MAX |

|               |                      |               |
|---------------|----------------------|---------------|
| Numero colata | Acciaieria           | N. Cert. Acc. |
| 72634         | IRIVA ACCIAIO S.P.A. |               |

**ANALISI CHIMICA**

|       |       |       |       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Elem. | C     | Cr    | Cu    | Mn    | Mo    | Nb    | Ni    | P     | S     | Si    | V     |
| Min   |       |       |       | 0,600 |       |       |       |       |       | 0,100 |       |
| Max   | 0,220 | 0,300 | 0,400 | 1,350 | 0,120 | 0,020 | 0,400 | 0,035 | 0,040 | 0,350 | 0,050 |

|        |       |       |       |       |       |       |       |       |       |       |       |
|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Colata | 0,183 | 0,040 | 0,280 | 0,930 | 0,010 | 0,000 | 0,040 | 0,013 | 0,010 | 0,200 | 0,017 |
| C. An. |       |       |       |       |       |       |       |       |       |       |       |

Carbonio Equivalente= 0,375

**CARATTERISTICHE MECCANICHE**

| Ordine Laboratorio | N. Descrizione         | UM1   | Min     | Max     | Valore  | UM2 | Valore    |
|--------------------|------------------------|-------|---------|---------|---------|-----|-----------|
| 128458             | 01 Snerv. Rp0,2% Amb T | N/mm2 | 250,000 |         | 338,000 | PSI | 49010,000 |
| 128458             | 01 Rottura Amb T       | N/mm2 | 485,000 |         | 566,000 | PSI | 73370,000 |
| 128458             | 01 Allungamento Amb T  | %     | 22,000  |         | 30,600  |     |           |
| 128458             | 01 Strizione Amb T     | %     | 30,000  |         | 52,900  |     |           |
|                    | 01 Durezza HB          | HB    | 146,000 | 187,000 | 150,000 |     |           |

**Trattamento Termico****NORMALIZZAZIONE:**I PARTICOLARI SONO STATI NORMALIZZATI ALLA TEMPERATURA DI 910 C.,  
CON PERMANENZA A TALE VALORE DI 1 ORA PER OGNI 25 mm. DI SPESSORE  
E RAFFREDDATI IN ARIA CALMA.-**Note****CERTIFICATO FEAT**Resp. Controllo Certificati  
IP. SPREAFICO

10 GEN. 2002

DOUGLAS CHERO Spa

Quality Assurance

P.C. STEFANO VITTORIO

Sigh

Resp. Assicurazione Qualita'  
E. MANZONI

# L.P.M.

S.n.c.

**LABORATORIO PROVE MATERIALI**

di Torretta D. &amp; Molinari V.

Via Portapuglia, 12/E - 29100 PIACENZA - Tel. (0523) 593018-592744 - Fax (0523) 592744 e-mail: l.p.m@libero.it

Partita I.V.A. 00875550337



Certificato di prove meccaniche  
Mechanical test certificate  
Mechanisches pruefzeugnis  
Certificat des essais mecaniques

**MTC 1213 /02**

Foglio 1 di 2  
sheet of  
Blatt von  
Feuille de

Cliente **DOUGLAS CHERO S.p.A. - Localita' Pradaglie - 29013 CARPANETO PIACENTINO (PC)**  
Customer  
Besteller  
Client

Comm. LPM : B556

Ordine cliente Vs. D.d.T. nr. 220356 del 08/04/02  
Customer order  
Bestellung  
Commande de Client

Norme di collaudo **ASTM A 105-01**  
Technical specifications  
Abnahme norme  
Specifications techniques

**Descrizione della fornitura - Extent of material delivery - Umfang der Lieferung - Liste descriptive**

| N. Pos.<br>Item No.<br>Pos. Nr.<br>Pos: N. | Pos. Cliente<br>Cust. Item<br>Besteller pos.<br>Pos. Client | Quantità<br>Quantity<br>Stuck<br>Quantité | Tipo del prodotto - Type of the product<br>Gegenstand - Designation du produit | Materiale<br>Material<br>Werkstoff<br>Material | N. di prova<br>Test No.<br>Probe Nr.<br>N. d'éprouvette | N. di colata<br>Heat No.<br>Schmelze Nr.<br>N.coulée |         |
|--------------------------------------------|-------------------------------------------------------------|-------------------------------------------|--------------------------------------------------------------------------------|------------------------------------------------|---------------------------------------------------------|------------------------------------------------------|---------|
|                                            |                                                             |                                           | cod. col.                                                                      |                                                |                                                         |                                                      |         |
| 1                                          |                                                             |                                           | Corpo 2/9                                                                      | FB-OK                                          | A105N                                                   | 122                                                  | 1T3122  |
| 2                                          |                                                             |                                           | Cappello 2/8                                                                   | FB-OR                                          | "                                                       | 308                                                  | 78308   |
| 3                                          |                                                             |                                           | Corpo 3/9                                                                      | FB-OW                                          | "                                                       | 381                                                  | 72381   |
| 4                                          |                                                             |                                           | Corpo 4/9                                                                      | FB-PA                                          | "                                                       | 634                                                  | 72634 X |
| 5                                          |                                                             |                                           | Cappello 4/8                                                                   | FB-OS                                          | "                                                       | 014                                                  | T7014   |
| 6                                          |                                                             |                                           | Corpo N6/9S                                                                    | Y-AO                                           | "                                                       | 981                                                  | 1471981 |
| 7                                          |                                                             |                                           | Corpo N6/9D                                                                    | Y-AA                                           | "                                                       | 295                                                  | 36295   |
| 8                                          |                                                             |                                           | Cappello N6/8                                                                  | Y-AH                                           | "                                                       | 550                                                  | 78550   |
| 9                                          |                                                             |                                           | Corpo 7/9S                                                                     | Y-TA                                           | "                                                       | 968                                                  | 6968    |
| 10                                         |                                                             |                                           | Cappello 7/8                                                                   | Y-SH                                           | "                                                       | 970                                                  | 1472970 |
| 11                                         |                                                             |                                           | Tondo d.45mm                                                                   | 78441                                          | "                                                       | 441                                                  | 78441   |
| 12                                         |                                                             |                                           | Tondo d.55mm                                                                   | 75415                                          | "                                                       | 415                                                  | 75415   |
| 13                                         |                                                             |                                           | Corpo S6/S                                                                     | Y-A                                            | "                                                       | 868                                                  | 74868   |
| 14                                         |                                                             |                                           | Cappello S6/8                                                                  | Y-AA                                           | "                                                       | 383                                                  | 74383   |
| 15                                         |                                                             |                                           | Corpo S2/9                                                                     | M-C30                                          | "                                                       | 10                                                   | 70646   |
| 16                                         |                                                             |                                           | Corpo S3/9                                                                     | M-C36                                          | "                                                       | 11                                                   | 1T2972  |
| 17                                         |                                                             |                                           | Cappello S2/8                                                                  | M-C37                                          | "                                                       | 12                                                   | 71701   |
| 18                                         |                                                             |                                           | Corpo S4/9                                                                     | E-TN                                           | "                                                       | 40                                                   | 1472972 |
| 19                                         |                                                             |                                           | Cappello S4/8                                                                  | M-C25                                          | "                                                       | 41                                                   | 1T524   |

**Data - Date - Datum - Date****Ispettori - Inspectors - Sachverständige - Inspecteurs****Eseguito da / Performed by**  
**Recitato da / Recite par**

14/06/02

**DOUGLAS CHERO Spa**

Quality Assurance

**P.C. STEVANI VITTORIO**

Sig. \_\_\_\_\_



**L.P.M.**

S.N.C.

**LABORATORIO PROVE MATERIALI**

di Torretta D. &amp; Molinari V.

**RISULTATI DELLE PROVE - Test results**

Ergebnis der prüfungen - Resultats des essais

Foglio  
sheet  
Blatt  
Feuille

2

di  
of  
von  
de**MTC 1213 /02**N. di collata  
Heat No.  
Schmelz Nr.  
N. coulé**Prova di resilienza - Impact test**  
Kerbschlagzähigkeit - Essai de resilience**Tipo - Type** CHARPY "V"  
**Art. - Type**

| N. di prova<br>Test No.<br>Probe Nr.<br>N. d'éprouvette | Dimensioni<br>Dimensions<br>Abmessungen<br>Dimensions<br>mm | Direz.<br>Direct.<br>Richtung.<br>Direct. | Temp.<br>Temp.<br>Temp.<br>Temp.<br>°C | Energia assorbita<br>Absorbed energy                       |                                                    | Area drittile<br>Shear area                            |                                                | Espansione laterale<br>Lateral expansion                       |                                                        |
|---------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------|----------------------------------------|------------------------------------------------------------|----------------------------------------------------|--------------------------------------------------------|------------------------------------------------|----------------------------------------------------------------|--------------------------------------------------------|
|                                                         |                                                             |                                           |                                        | Richiesto<br>Requirem.<br>Erfordernis<br>Demandée<br>Joule | Ottenuto<br>Results<br>Ergebnis<br>Obtenu<br>Joule | Richiesto<br>Requirem.<br>Erfordernis<br>Demandée<br>% | Ottenuto<br>Results<br>Ergebnis<br>Obtenu<br>% | Richiesto<br>Requirem.<br>Erfordernis<br>Demandée<br>mm - mils | Ottenuto<br>Results<br>Ergebnis<br>Obtenu<br>mm - mils |
|                                                         |                                                             |                                           |                                        |                                                            |                                                    |                                                        |                                                |                                                                |                                                        |

|     |       |   |     |      |             |  |  |  |  |
|-----|-------|---|-----|------|-------------|--|--|--|--|
| 122 | 10x10 | L | -29 | > 27 | 44-53-45    |  |  |  |  |
| 308 | 10x10 | " | "   | "    | 30-35-33    |  |  |  |  |
| 381 | 10x10 | " | "   | "    | 46-45-40    |  |  |  |  |
| 634 | 10x10 | " | "   | "    | 37-41-30    |  |  |  |  |
| 014 | 10x10 | " | "   | "    | 40-36-34    |  |  |  |  |
| 981 | 10x10 | " | "   | "    | 35-38-40    |  |  |  |  |
| 295 | 10x10 | " | "   | "    | 35-36-41    |  |  |  |  |
| 550 | 10x10 | " | "   | "    | 38-37-37    |  |  |  |  |
| 968 | 10x10 | " | "   | "    | 32-43-45    |  |  |  |  |
| 970 | 10x10 | " | "   | "    | 152-115-104 |  |  |  |  |
| 441 | 10x10 | " | "   | "    | 50-39-45    |  |  |  |  |
| 415 | 10x10 | " | "   | "    | 50-35-35    |  |  |  |  |
| 868 | 10x10 | " | "   | "    | 44-32-35    |  |  |  |  |
| 383 | 10x10 | " | "   | "    | 36-36-42    |  |  |  |  |
| 10  | 10x10 | " | "   | "    | 34-53-33    |  |  |  |  |
| 11  | 10x10 | " | "   | "    | 63-46-45    |  |  |  |  |
| 12  | 10x10 | " | "   | "    | 48-36-37    |  |  |  |  |
| 40  | 10x10 | " | "   | "    | 40-49-55    |  |  |  |  |
| 41  | 10x10 | " | "   | "    | 65-46-51    |  |  |  |  |

**Data - Date - Datum - Date****Ispettori - Inspectors - Sachverständige - Inspecteurs****Eseguito da - Performed by**  
**Sachverständiger - Execute par**

14/06/02

**DOUGLAS CHERO Spa**

Quality Assurance

**P.C. STEVANI VITTORIO**Sig. 

# Acciaierie Valbruna S.p.A.



36100 VICENZA (Italia) - Viale della scienza, 25 z.l.

Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

Cliente / Besteller/Kunde  
ARCOSS SNC DEI F.LLI ASSOLARI  
VIA LEVATA N.19/A  
24068-SERATE (BG)-BG

Produttore: STABILIMENTO DI BOLZANO  
Hersteller/Werk/Produzierer

Oggetto Prove: - Riscotto lavorabile Pelato  
Prüfgegenstand/Nam. inspected/Finstage

Avviso di Spedizione: A  
Lieferung/Frachtung

Ordine nr. ORD.TEL  
Bestell/Tour order/Commande

Tipo di Elaborazione: E+AOD  
Bearbeitung/Verf./Manufact. process/Mode d'elaboration

CERTIFICATO DI COLLAUDO  
ABNAHMEPRUEFZEUGNIS  
INSPECTION CERTIFICATE  
CERTIFICAT DE RECEPTION  
EN 10204, 3.1.B

Certificato nr. MEST134329/2004/  
Prüfung/Test/Exam

Conferma ordine nr. MIO4006028  
Werk/Our Order/Ref. nr.

Marchio di Fabbrica:  
Zeichen des Werkmeisters  
Trade mark  
Style de l'usine produisant

Funzione del Collaudatore:  
Stempel des Werkseinschreibenden  
Inspector's stamp/Fonction de l'essayeur



Specifiche:  
Anforderungen / Requirements / Exigences

VALBRUNA 2002 410 OBSOLE  
ASME (1) SA479 2001 S41000 A (1)  
ASTM A479 2001 S41000 A  
9EC.II PTA 2001 EDITION  
Chemical analysis only.

AISI 410  
ASTM A182 2002 S41000 (2)  
EN 10088-3 95 1.4006 A

ASME (1) SA182 2001 S41000 CLASS2 (2)  
ASTM A276 2000A S41000 A  
EN 10272 2000 1.4006 A

(1) SEC.II PTA 2001 EDITION

Qualità: 410  
Werkstoff/Grade/Matériau

Marca: VAL1  
Markenzeichen/Brand/Numéro

Punzonatura: 410  
Kennzeichnung/Marking/Marquage

| Pos. nr.<br>Post. nr.<br>Item nr.<br>Nr. de poste | Oggetto<br>Gezeichnet<br>Produit description<br>Désign. du produit | Dimensioni - mm<br>Abmessungen<br>Dimensions<br>Dimensions | Tolleranza<br>Tolerance<br>Tolérance | Lunghezza - mm<br>Länge<br>Length<br>Longueur | Colata<br>Schmelze<br>Heat<br>Coulée | Pezzi<br>Stückzahl<br>Pieces<br>Pièces | Peso - KG<br>Gewicht<br>Weight<br>Poids | Lotto nr.<br>Losnr.<br>Lot nr.<br>Lot. nr. |
|---------------------------------------------------|--------------------------------------------------------------------|------------------------------------------------------------|--------------------------------------|-----------------------------------------------|--------------------------------------|----------------------------------------|-----------------------------------------|--------------------------------------------|
| 0030                                              | Tondo                                                              | 32,000                                                     | K12-MIN                              | 5000 / 5500                                   | 237411                               | 1                                      | 642,0                                   | 335600480                                  |

Sono state soddisfatte tutte le condizioni richieste  
Die gestellten Anforderungen sind erfüllt  
The material has been inspected in accordance with the requirements  
Le matériel a été trouvé conforme aux exigences

Controllo antimescolanza: OK  
Vermischungsprüfung: zufriedenstellend durchgeführt  
Antimixing testing performed: OK  
Contrôle antimesclage fait: r.s.s.

Controllo visivo e dimensionale: soddisfatta le esigenze:  
Beisichtigung und Ausmessung: ohne Beanstandung  
Visual inspection and dimensional check/satisfactory  
Contrôle visuel et dimensionnel: satisfaisant

| TEST                                                                         | Provetta/Probe<br>Spannungskorvette<br>Longitudinal Specimen<br>Elong. Char. Piece<br>Vital Char. Specimen<br>Long. Char. Specimen | " C        | Posiz.<br>Saggio<br>Position<br>Lage<br>Position | Snervamento<br>Biegeversuch<br>Tensile Char.<br>Tensile Specimen<br>Rp 0,2%<br>N/mm2 | Snervamento<br>Biegeversuch<br>Tensile Char.<br>Tensile Specimen | Resistenza<br>Zugversuch<br>Tensile Char.<br>Tensile Specimen<br>Rm<br>N/mm2 | Affiezione<br>Biegeversuch<br>Tensile Char.<br>Tensile Specimen<br>A5<br>% | E 4d<br>% | Strizione<br>Zugversuch<br>Tensile Char.<br>Tensile Specimen<br>Z<br>% | RA | Resilienza<br>Kerbschlagversuch<br>Impact Value<br>Resilience | Durezza<br>Härte<br>Hardness<br>Dureté<br>HB |
|------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------------------------------------|--------------------------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------------------|----------------------------------------------------------------------------|-----------|------------------------------------------------------------------------|----|---------------------------------------------------------------|----------------------------------------------|
| Valori richiesti 1<br>Anforderungen 1<br>Required values<br>Valeurs requises |                                                                                                                                    | min<br>max |                                                  | 380                                                                                  | -                                                                | 585<br>730                                                                   | -                                                                          | 20        | -                                                                      | 45 | -                                                             | 167<br>220                                   |
| A                                                                            | 10.00                                                                                                                              | 20         | L                                                | 458                                                                                  |                                                                  | 675                                                                          | 30                                                                         | 32        | 65                                                                     | 65 |                                                               | 205                                          |

\*1) - Longitudinal, \*2) - Transversal, \*3) - Tensile, \*4) - Charpy

## Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata/Heat<br>Schmelze/Coulée | min 0,080<br>max 0,120 | - 1,00 | - 1,00 | 11,50<br>13,50 | - 0,50 | - 0,040 | - 0,030 | - | - | - | - | - | - | - | - |
|--------------------------------|------------------------|--------|--------|----------------|--------|---------|---------|---|---|---|---|---|---|---|---|
|                                | C %                    | SI %   | Mn %   | Cr %           | Ni %   | P %     | S %     |   |   |   |   |   |   |   |   |
| 237411                         | 0,139                  | 0,39   | 0,74   | 12,10          | 0,23   | 0,017   | 0,022   |   |   |   |   |   |   |   |   |

Made in Italy No welding or weld repair Material free from Mercury or radio-activity contamination  
The Quality Management System is Certified acc. Pressure Equipment Directive (97/23/EC) Annex 1, 2, 4.3 by TÜV and LLOYD'S

DOUGLAS CHERO SpA

Quality Assurance  
P.C. STEFANO VITTORIO

Sign.

COPIA CONFORME ALL' ORIGINALE  
ACCIAIERIE VALBRUNA S.P.A.  
FILIALE DI GORMANO

|                                   |                                                                                                                 |                 |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------|-----------------|
| Bolzano, 08/06/04<br>Mod. BSL 006 | Il collaudatore di stabilimento / der Werksechsvorstandige / Works Inspector / L'agent d'usine<br>R. Cristofari | Pagina - 1 di 1 |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------|-----------------|

2007/2/1

# MECCANICHE MORANDI s.r.l.

VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.949 • Fax 0331.302.948

E-mail: mecomorandi@libero.it

Codice Fiscale e Partita IVA 01779110129

CERTIFICATO DI COLLAUDO  
Inspection certificate

26738

N°6128/DCH DATE-16.11.04

CLIENTE- DOUGLAS CHERO Spa  
Customer

ORDINE-242000  
Order

BOLLA CONSEGNA N-3750  
Delivery note

## DESCRIZIONE DEL MATERIALE

## MATERIAL DESCRIPTION

| Item | Quantity | Article             | Material             | Heat n. |
|------|----------|---------------------|----------------------|---------|
| 1    | 6733     | VITI TE M 12 X 30,5 | ASTM A 193/A 193M B7 | AR4273  |

## ANALISI CHIMICA

## CHEMICAL ANALYSIS

| %        | C         | Mn   | Si   | Cr   | Mo   | S     | P     |
|----------|-----------|------|------|------|------|-------|-------|
| REQUIRED | min. 0.37 | 0.65 | 0.15 | 0.75 | 0.15 |       |       |
| VALUE    | max. 0.49 | 1.10 | 0.35 | 1.20 | 0.25 | 0.040 | 0.035 |
| HEAT n.  | 0,44      | 0,77 | 0,26 | 1,06 | 0,23 | 0,005 | 0,007 |
| AR4273   |           |      |      |      |      |       |       |

## CARATTERISTICHE MECCANICHE

## MECHANICAL REQUIREMENTS

|          | Rm.<br>min. | Rp. (0,2)<br>min. | A4<br>min. | Z.<br>min. | Hardness<br>max |
|----------|-------------|-------------------|------------|------------|-----------------|
| REQUIRED | 860 MPa     | 720 MPa           | 16%        | 50%        | 35 HRC          |
| ACTUAL   | 1032        | 945               | 17,5       | 53,5       | 32              |
| VALUE    |             |                   |            |            |                 |

## HEAT TREATMENT

Quenched at : 860 °C in oil  
Tempering : 2 hours at 593 °C min.

Visual and dimensional test = SATISFACTORY

This certificate has been tested in according with the specification included in your order.

## QUALITY CONTROL

- CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

22 NOV. 2004  
DOUGLAS CHERO Spa

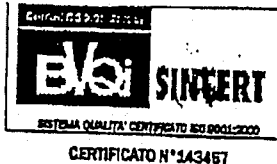
Quality Assurance .....  
P.C. STAVANI VITTORIO  
Elett. ....

MECCANICHE MORANDI srl  
Via Magenta n. 27  
21015 LONATE POZZOLO (VA)

# Bonomi s.r.l.

## STAMPAGGIO A CALDO DELL'ACCIAIO

23851 CESANA BRIANZA (Le) Via Carlo Porta, 8  
☎ 031/656798 ☎ 031/657597



Partita I.V.A. 02418370132  
R.I. Lecco N. 15934  
R.E.A. Lecco N. 288235

02590200

TEST CERTIFICATE N° 040349  
CERTIFICATO DI COLLAUDO  
3.1B-AS-TO- SECONDO  
UNI EN 10204  
DATA: 04/06/2004

Spett.le Ditta  
DOUGLAS CHERO Spa  
Loc. Pradaglie  
29013 CARPANETO P.NO (Pc)

|                                                         |  |                                     |                                                             |                       |                 |                                                    |                                           |                            |                              |                   |       |
|---------------------------------------------------------|--|-------------------------------------|-------------------------------------------------------------|-----------------------|-----------------|----------------------------------------------------|-------------------------------------------|----------------------------|------------------------------|-------------------|-------|
| CUSTOMER ORDER - ORDINE CLIENTE                         |  | P.O.                                | DOCUMENTO DI TRASPORTO                                      |                       | INVOICE-FATTURA |                                                    |                                           |                            |                              |                   |       |
| 240741 pos. 1                                           |  |                                     | 139 del 25/05/2004                                          |                       |                 |                                                    |                                           |                            |                              |                   |       |
| DESCRIPTION OF PARTICULAR - DESCRIZIONE DEL PARTICOLARE |  |                                     | TYPE AND MATERIAL SPECIFICATIONS-TIPO E SPECIFICA MATERIALE |                       |                 |                                                    |                                           |                            |                              |                   |       |
| BONNET                                                  |  |                                     | ASTM A105N                                                  |                       |                 |                                                    |                                           |                            |                              |                   |       |
| NUMERO COLATA<br>HEAT NUMBER                            |  | CHEMICAL ANALYSIS - ANALISI CHIMICA |                                                             |                       |                 |                                                    |                                           |                            |                              |                   |       |
| 1T 7629                                                 |  | C                                   | SI                                                          | Mn                    | P               | S                                                  | Cu                                        | Cr                         | Ni                           | Mo                | V     |
| STEEL MILL<br>ACCIAIERIA                                |  | 0.200                               | 0.240                                                       | 0.880                 | 0.011           | 0.008                                              | 0.120                                     | 0.050                      | 0.100                        | 0.010             | 0.001 |
| ST.M. CERT. N.                                          |  | Al                                  | Sn                                                          | Ti                    | Nb              | C.E.                                               |                                           |                            |                              |                   |       |
| CERT. ACC. N.                                           |  | 0.021                               | 0.008                                                       | 0.003                 | 0.001           | 0.370                                              |                                           |                            |                              |                   |       |
| HEAT CODE ON FORGING<br>CODICE COLATA                   |  | DISEGNO DEL FORGIATO                |                                                             | QUANTITY<br>QUANTITA' |                 | MECHANICAL PROPERTIES - CARATTERISTICHE MECCANICHE |                                           |                            |                              |                   |       |
| BDCO                                                    |  | 4/8                                 |                                                             | 7.800                 |                 | YIELD<br>STRENGTH<br>P.0.2<br>SHEARAIL<br>N/mm2    | TENS.<br>STRENGTH<br>P.0.2<br>ROTT. N/mm2 | ELONG<br>2" 50<br>ALLUNG % | RED OF<br>AREA<br>% CONTRAZ. | H.B.              |       |
|                                                         |  |                                     |                                                             |                       |                 | 346                                                | 522                                       | 30,00                      | 61,06                        | 159<br>159<br>156 |       |
| HEAT TREATMENT - TRATTAMENTO TERMICO                    |  |                                     |                                                             |                       |                 |                                                    |                                           |                            |                              |                   |       |
| Normalizing                                             |  |                                     |                                                             |                       |                 |                                                    |                                           |                            |                              |                   |       |

### REMARKS

- The result of chemical analysis is a true and correct copy of the mill certificate issued, by the manufacturer of the steel employed, or by the laboratory which has determined it.  
\* I risultati delle analisi chimiche è la corretta trascrizione del certificato di colata emesso dall'acciaieria o dal laboratorio che li ha rilevati.
- The material or components shipped under the above order number did not come in direct contact with mercury or any of its components; or with any mercury containing devices employing a single boundary of containment, during the manufacturing process inspection or storage.  
\*\* Il materiale o i particolari spediti per questi ordini non sono mai venuti a contatto diretto con mercurio o con elementi contenenti mercurio durante la fase di lavorazione, controllo o immagazzinamento.

I certify these tests to be correct as contained in the records of the company  
certifico che tutti i dati sono corretti e uguali a quelli registrati presso Bonomi

11 GIU. 2004

DOUGLAS CHERO Spa

Quality Assurance .....

P.C. STEFANI VITTORIO

Sign .....

Q.A. OFFICE  
OFFICE QUALITA'

Bucchi Rosalba

# Valbruna S.p.A.

36100 VICENZA (Italy) - Viale della Sclarm, 25-1

Stab: 36100 BELLUNO (Italy) - Via Al. Volta, 4

Clienti / Kunden / Clients

Produzione: ACCIAIERIE VALBRUNA S.P.A.  
Herstellung/Usine producer

Oggetto Prove: - Rilcotto (avorabile Trafilato)  
Prüfungsmaterial/Item inspected/Prüfung

Avviso di Spedizione: A-VI04014082  
Lieferungsfach/Shipping Fach

Ordine nr: DEL 29.01.04  
Bestell-Nr order/Bestellung

Tipo di Elaborazione: E-AOD  
Bearbeitungsart/Working process/Mode of elaboration

Certificato nr: MEST105850/2004  
Prüfung/Proof Certificate

Conferma ordine nr: MI04000714  
Werkzeug/Order/Proof nr

Marchio di Fabbrica:  
Zeichen des Unternehmens  
Trade mark  
Signe de l'usine producer

Funzione del Collaudatore:  
Stempel des Werkstoffverständigen  
Inspector's stamp/Prüfung des Fachmann

## Specifiche

Anforderungen / Requirements / Exigences

ASTM A182 2000C S41000 CLASS2 (m)

(0) Chemical analysis only and mecc. properties (for ASTM A182(M))

Qualità: S41000

Werkstoff: S41000

Marchio: VAL1

Mechanical marking/Brand/Marking

Punzonatura:

Markierung/Marking/Marking

| Pos. nr.<br>Pos. nr.<br>Item nr. | Oggetto<br>Object<br>Product description | Dimensioni - mm<br>Abmessungen<br>Dimensions | Tolleranza<br>Tolerance<br>Tolerance | Lunghezza - mm<br>Länge<br>Length | Colata<br>Guss<br>Cast | Pezzi<br>Stücke<br>Pieces | Peso - KG<br>Gewicht<br>Weight | Lotto nr.<br>Losnr.<br>Lot nr. |
|----------------------------------|------------------------------------------|----------------------------------------------|--------------------------------------|-----------------------------------|------------------------|---------------------------|--------------------------------|--------------------------------|
| 0010                             | Tondo                                    | 14,000                                       | H9-MIN                               | 3900 / 4000                       | 237840                 |                           | 5965,0                         | 403302310                      |

Sono state soddisfatte tutte le condizioni richieste

Die genannten Anforderungen sind erfüllt.

The material has been furnished in accordance with the requirements.

Le matériel a été livré conforme aux exigences.

| TEST             | Prove/Prüfung<br>Bewertung<br>Laplace Test<br>Bewertung<br>Laplace Test<br>Laplace Test<br>Laplace Test<br>Laplace Test<br>Laplace Test | °C  | Snervamento<br>Zug<br>Yield<br>Rp 0,2<br>N/mm2 | Snervamento<br>Zug<br>Yield<br>Rp 0,2<br>N/mm2 | Resistenza<br>Zug<br>Tensile strength<br>Rm<br>N/mm2 | Allungamento<br>Zug<br>Elongation<br>E 4d<br>% | Silenzione<br>Zug<br>Reduction of area<br>RA<br>% | Resistenza<br>Zug<br>Tensile strength<br>Rm<br>N/mm2 | Durezza<br>Härte<br>HB |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------|-----|------------------------------------------------|------------------------------------------------|------------------------------------------------------|------------------------------------------------|---------------------------------------------------|------------------------------------------------------|------------------------|
| Valori richiesti | min                                                                                                                                     | max | 380                                            | -                                              | 585                                                  | 18                                             | 35                                                | -                                                    | 157                    |
| A                | 12,5                                                                                                                                    | 20  | 610                                            | -                                              | 698                                                  | 22                                             | 68                                                | -                                                    | 215                    |

1) Longitudinalmente, trasversalmente, T-Targhetta longitudinale

## Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata:<br>Guss<br>Cast | - min<br>0,15 max | - 1,00 | - 1,00 | 11,30<br>13,20 | - 0,50 | - 0,040 | - 0,030 | - | - | - | - | - | - |
|-------------------------|-------------------|--------|--------|----------------|--------|---------|---------|---|---|---|---|---|---|
| C %                     | Si %              | Mn %   | Cr %   | Ni %           | P %    | S %     |         |   |   |   |   |   |   |
| 237840                  | 0,14              | 0,36   | 0,70   | 12,55          | 0,27   | 0,017   | 0,024   |   |   |   |   |   |   |

Made in Italy No welding or weld repair Material free from Mercury or radio-activity contamination

The Quality Management System is Certified acc. Pressure Equipment Directive (97/23/EC) Annex 1, 4, 4.3 by TÜV and LLOYD'S

29 GIU. 2004

DOUGLAS CHERO Spa

Quality Assurance

P.C. STEFANI VITTORIO

Sign: .....

Vicenza, 17/05/04

M. Pizzotti

Il collaudatore di stabilimento / der Werkstoffverständiger / Works Inspector / L'agent d'usine

M. Pizzotti

Pagina - 1 di 1



FRANCE

Usine Producteur  
Hersteller  
Manufacturer

UGINE

F 73403 UGINE CEDEX

Tél : 04.78.89.30.30  
Fax : 04.78.89.30.51N. Nr No 86535  
N. de commande usine - Werkbestellnummer - Works order number  
FUGE TEST 01/01 8Z141100CERTIFICATO COLLAUDO DI ACCETTAZIONE B  
CERTIFICAT DE RECEPTION 3.1.B  
INSPECTION CERTIFICATE B

EN 10204 / 3.1.B

Produit / Erzeugnis / Product  
IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATEClient / au destinataire - Besteller und/oder Empfänger - Purchaser and/or Consignee  
TECNOMECCANICA SRL 364

Nuance et spécifications techniques - Stabsorte und Prüfbedingungen - Quality and Specifications

IMA4006 410 AISI 410 UNS S41000

SPEC. SDA 09 DU 20/11/01 (SAUF MN)

Etat de livraison - Lieferzustand - As delivered (1)

Traitement de Référence - Probestattenbehandlung - Treatment of test samples (1)

TEMPRATO RINVENUTO

Identification du produit  
Erzeugnis Benennung - Product Identification  
N. de cde usine N. de poste N. de Coulée  
Werkbestellnummer Post Nr Schmelz Nr  
Works order number Item No Heat No  
8Z141 100 404019 100 TONDO 24,000 1057 KGTraction - Zugversuch - Tensile test  
Limite d'Elasticité  
Streckgrenze  
Yield Strength  
Résistance à la traction  
Zugfestigkeit  
Tensile strength  
Dureté  
Héarts  
Hardness  
Type  
Form  
Type  
Valeurs Individuelles  
Einzelwerte  
Individual Values  
Moyenne  
Mittelwert  
Average  
Dureté  
Héarts  
Hardness  
HB  
237

604 692 21 70 210

39 A  
N. de Prélèvement  
Probennummer  
Test N.  
Demande  
Vorschritt  
Rechnung  
Min  
Max  
N. de Coulée  
Schmelz Nr  
Heat N.  
Analyse/Produit-Check  
analyse/Check-Analyse  
04019  
42 C  
43 SI  
44 MN  
45 NI  
46 CR  
47 S  
48 P  
49  
50  
0,150 0,60 0,60 11,50 0,030 0,040  
0,108 0,45 0,40 0,36 12,10 0,023 0,01838  
Mode  
Elaboration  
hmel  
Zugversuch  
Tilgung process  
Demande  
Vorschritt  
Rechnung  
Min  
Max  
Electrique  
Elektrisch  
Electric

IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE

DOUGLAS CHERO Spa

Quality Assurance .....

P.C. STEFANO VITTORIO

Sign. ....

(3) L = Long - Long  
Laenge - Long  
T = Transvers  
Quer-Transverse  
(1) TE = Trempe à l'eau - Wasserherren - Waterquench  
TH = Trempe à l'huile - Ölfarren - Oil Quench  
A = Hypertrempe - Lösungsgegluht - Solution annealed  
R = Revenu - Anlassen - Tempered  
RT = Recuit - Geglucht - Annealed  
TRM = Recuit maxi - Weichgeglucht - Max annealedUgine, le 18-02-04  
L'Agent Réceptionnaire de l'usine  
Der Werkssachverständige  
The Work Inspector(4) A l'état de référence  
Zum Bezug Zustand  
At reference condition  
(5) A l'état de livraison  
In Lieferzustand  
In state of delivery  
60 A 60 B  
Contrôle de marquage, d'aspect et de dimensions: satisfaisant  
Bezeichnung, Beschichtung und Ausmessung: ohne Beanstandung  
Marking, inspection and measurement: without objection  
Nous certifions que les produits énumérés ci-dessus sont conformes aux prescriptions de la commande  
Wir bestätigen hiermit dass die obengenannten Erzeugnisse den Bestimmungsvorschriften entsprechen  
We certify hereby that the above mentioned products are consistent with the order prescriptions

H. Mayet 63



Postfach 10 13 49  
D - 44713 Bochum  
Blumenfeldstr. 18  
D - 44795 Bochum

Telefon (0234) 4595 - 0  
Telefax (0234) 43 23 87

## Abnahmeprüfzeugnis DIN EN 10204 - 3.1B

Inspection certificate

**Besteller:** Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt  
**Customer:**

**Bestell-Nr.:** Lurgi Job - No.: 69690-10  
**Order no.:** Lurgi OGC PO.-No.: 4567569-000 to -001/1.69690/136

**Project Name :** 2nd Zagros Methanol Plant - Iran

**Auftrag-Nr.:** HH - 02535  
**Job no.:**

**Lieferumfang / range:**

| Pos   | Stck.<br>pcs. | Gegenstand<br>object                          | DN | PN      | Werkstoff<br>material | Bemerkung<br>comment        |
|-------|---------------|-----------------------------------------------|----|---------|-----------------------|-----------------------------|
| 00300 | 1             | Globe valve<br>RB BB SW<br>Seat + disk stell. | 1" | Cl.1500 | ASTMA A105N           | Valve Ident - No.: " V305 " |

**Auslegung + Prüfung nach** API 602 - BS EN ISO 15761, API 598 / BS EN 12266-1  
**Design and tests acc. To** ASME B16.34 - B16.25 - B16.11 - B1.20.1

**Sicht- und Funktionsprüfung:** o.k.  
**visual and functional test:**

**Festigkeits-/Dichtheitsprüfung:** Festigkeit / shell test = 211 bar Wasser / water (60 sec)  
**strength-/tightness-test:** Dichtheit Sitz / seat = 156 bar Wasser / water (60 sec)  
Rückdichtung / backseat = 156 bar Wasser / water (60 sec)  
Dichtheit Sitz / seat = 6 bar Luft / air (60 sec)

**Prüfungsergebnis:** ohne Beanstandung !  
**result:** no complaint !

*i.A. Walli glB*  
Bochum, den 28.02.2005 - WG KLAUS UNION GmbH & Co. KG  
Werksachverständiger:  
Manufacturer's authorized inspector: Walter Glass

**Anlage:** Dokumentation gemäß Material-Dokumentationsdeckblatt  
**enclosure** Documentation acc. to material cover sheet



|              |            |
|--------------|------------|
| Datum / Date | 25.02.2005 |
| Seite / Page | 1          |

Seite / Page 1

Person in charge

Lurgi Job - No.: 69690-10  
Lurgi OGC PO,- No.: 4567569 - 000 to -001/ 1.69690 / 136

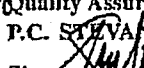
Project Name: 2nd Zagros Methanol Plant - Iran

[illegible]

532100

|                                                                                                                                                                                                                |  |                                         |  |                                                                                                                                |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------|--|
| <b>ISELFA</b>                                                                                                                                                                                                  |  | STEEL FORGINGS<br>ELECTRICAL FITTINGS   |  | <b>CONTROLLO QUALITÀ</b><br>Certificato di conformità<br>Compliance certificate<br>Genealogische Zeugnis<br>UNI EN 10204/3.1.B |  |
| S.p.A. - C.F./P.IVA VAT IT 00189520125<br>21048 SOLBIATE ARNO (Va) Italy - Corso Roma, 22<br>P.O. BOX 21 - TELEFONO +39 (0331) 99.30.08<br>FAX FORGINGS +39 (0331) 99.15.35 - FAX FITTINGS +39 (0331) 99.48.77 |  |                                         |  | <br>N° 16310 Date 31.03.04                    |  |
| CLIENTE<br>Customer DOUGLAS CHERO SPA<br>Kunde                                                                                                                                                                 |  | ORDINE N°<br>Order 231844<br>Bestellung |  | DATA<br>Date 12.09.03<br>Datum                                                                                                 |  |
| RIMESSO N°<br>Delivery note<br>Lieferschein 400529                                                                                                                                                             |  | DATA<br>Date 31-03-04<br>Datum          |  | N° PEZZI<br>Pieces<br>Stückzahl 2.420                                                                                          |  |
| DESCRIZIONE - Description - Zeichnung                                                                                                                                                                          |  | DISEGNO N° - Drawing - Zeichnung        |  | INDICE - Last revision - Verzeichnis                                                                                           |  |
| CORPI Dis. N6/9S Rev.1                                                                                                                                                                                         |  |                                         |  |                                                                                                                                |  |
| TIPO ACCIAIO<br>Steel type ASTM-A.105 BILL.80<br>Stahl                                                                                                                                                         |  | COLATA<br>Heat 76009/60<br>Schmelze     |  | FORNITORE<br>Supplier RIVA ACCIAIO SPA<br>Lieferant                                                                            |  |

## COMPOSIZIONE CHIMICA / Chemical composition / Chemische Zusammensetzung

|                                                   |                                                                                                                                                                           |                                                                                                                    |                                        |                                                        |                                                                                                                                                                                            |                                   |        |        |        |        |        |                                   |
|---------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|----------------------------------------|--------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|--------|--------|--------|--------|--------|-----------------------------------|
| CARATTERISTICHE ACCIAIO (FORNITE DALL'ACCIAIERIA) | %                                                                                                                                                                         | C                                                                                                                  | Mn                                     | Si                                                     | Cr                                                                                                                                                                                         | Ni                                | Mo     | V      | P      | S      | Cu     | Nb                                |
|                                                   | RICHIESTA min<br>Requested<br>Erforderliche                                                                                                                               | 0,350                                                                                                              | 0,600                                  | 0,350                                                  | 0,300                                                                                                                                                                                      | 0,400                             | 0,120  | 0,030  | 0,040  | 0,050  | 0,400  | 0,020                             |
|                                                   | FORNITA max<br>Supplied<br>Wirkliche                                                                                                                                      | 0,2100                                                                                                             | 0,9000                                 | 0,2100                                                 | 0,0900                                                                                                                                                                                     | 0,0500                            | 0,0100 | 0,0210 | 0,0130 | 0,0020 | 0,1700 |                                   |
|                                                   | PROVA JOMINY / Jominy test / Stahnschreckversuch                                                                                                                          |                                                                                                                    |                                        |                                                        |                                                                                                                                                                                            |                                   |        |        |        |        |        |                                   |
|                                                   | HRC                                                                                                                                                                       |                                                                                                                    |                                        |                                                        |                                                                                                                                                                                            |                                   |        |        |        |        |        |                                   |
|                                                   | RICHIESTA min<br>Requested<br>Erforderliche                                                                                                                               | 0,00                                                                                                               | 0,00                                   | 0,00                                                   | 0,00                                                                                                                                                                                       | 0,00                              | 0,00   | 0,00   | 0,00   | 0,00   | 0,00   | GRANO<br>Grain size<br>Korngrösse |
|                                                   | FORNITA max<br>Supplied<br>Wirkliche                                                                                                                                      |                                                                                                                    |                                        |                                                        |                                                                                                                                                                                            |                                   |        |        |        |        |        | 6                                 |
|                                                   | CARATTERISTICHE MECCANICHE / Mechanical properties / Mechanische Eigenschaften                                                                                            |                                                                                                                    |                                        |                                                        |                                                                                                                                                                                            |                                   |        |        |        |        |        |                                   |
|                                                   | Normalizzato <input type="checkbox"/> Bonificato <input type="checkbox"/>                                                                                                 |                                                                                                                    |                                        |                                                        |                                                                                                                                                                                            |                                   |        |        |        |        |        |                                   |
|                                                   | Ø PROVETTA<br>Ø sample<br>Ø probest                                                                                                                                       | RP 0,2%<br>Yield strength 0,2%<br>0,2% Grenze                                                                      | R<br>Tensile strength<br>Zugfestigkeit | AC %<br>Elongation %<br>Dehnung %                      | Z %<br>Reduc. of area %<br>Einschnürung %                                                                                                                                                  | KCU<br>Impact value<br>Korbschlag |        |        |        |        |        |                                   |
| mm                                                | N/mm²                                                                                                                                                                     | N/mm²                                                                                                              | Lo = Ld                                |                                                        | J (joule)                                                                                                                                                                                  |                                   |        |        |        |        |        |                                   |
| 30                                                | 324                                                                                                                                                                       | 524                                                                                                                | 32                                     | 56                                                     | 0 / 0 / 0                                                                                                                                                                                  |                                   |        |        |        |        |        |                                   |
| CARATTERISTICHE PRODOTTO                          | TRATT. TERMICO<br>Heat Treatment<br>Wärmebehandlung                                                                                                                       | NORMALIZZAZIONE                                                                                                    |                                        | DUREZZA RICHIESTA<br>Requested hardness<br>Festigkeits | N/mm²                                                                                                                                                                                      |                                   |        |        |        |        |        |                                   |
|                                                   | DUREZZA RISCONTRATA N/mm²<br>Checked hardness<br>Finden harte                                                                                                             |                                                                                                                    |                                        | 0                                                      | 0                                                                                                                                                                                          | 0                                 | 0      | 0      | 0      | 0      | 0      |                                   |
|                                                   | CONTROLLI<br>Tests<br>Auswertetest                                                                                                                                        | C.D.C.<br>MAGNAFLUX 100%<br>VISIVO 100%                                                                            |                                        | SI<br>NO<br>SI                                         | DIMENSIONALE<br>ALTRI<br>POSITIVO<br>DOUGLAS CHERO Spa NO                                                                                                                                  |                                   |        |        |        |        |        |                                   |
|                                                   | ALLEGATI<br>Enclosed<br>Anlage                                                                                                                                            | ANALISI CHIMICA ACCIAIERIA<br>CERTIFICATO TRATT. TERMICO                                                           |                                        | SI<br>NO                                               | PRODOTTO AUTOCERTIFICATO<br>Quality Assurance .....<br>P.C. STEVANI VITTORIO<br>06 APR. 2004<br>Sig.  |                                   |        |        |        |        |        |                                   |
|                                                   | NOTE<br>Remarks<br>Bemerkungen                                                                                                                                            | TRATT.: RISCALDO A 500C PER 1 ORE OGNI 25MM DI SPESSORE<br>E RAFFREDDAMENTO IN ARIA CALMA.<br>SIGLA DI COLATA "BE" |                                        |                                                        |                                                                                                                                                                                            |                                   |        |        |        |        |        |                                   |
|                                                   | CONTROLLO QUALITÀ<br>QUALITY CONTROL<br>QUALITÄTSSTELLE<br>ISELFA S.p.A.<br>UFFICIO CONTROLLO QUALITÀ<br>STAMPAGGIO<br>COMPILATORE<br>ISELFA S.p.A.<br>SOLBIATE ARNO (VA) |                                                                                                                    |                                        |                                                        |                                                                                                                                                                                            |                                   |        |        |        |        |        |                                   |

EMISSO ED ARCHIVIATO DAL RESPONSABILE DEL CONTROLLO FINALE (CFI)

# Acciaierie Valbruna S.p.A.



36100 VIGENZA (Italia) - Viale della scienza, 25 z.l.  
Stab.: 36100 BOLZANO (Italia) - Via A. Volta, 4

Cliente / Besteller/Kunde  
ARCOSS SNC DEI F.LLI ASSOLARI  
VIA LEVATA N.19/A  
24068-SERATE (BG)-BG

Produttore: STABILIMENTO DI BOLZANO  
Hersteller/Werk/Usine producer

Avviso di Spedizione: *24/06/2004*  
Lieferung/Werksanweisung

Ordine nr. ORD.TEL  
Bestell/Nr. order/Commande

CERTIFICATO DI COLLAUDO  
ABNAHMEPRUEFZEUGNIS  
INSPECTION CERTIFICATE  
CERTIFICAT DE RECEPTION  
EN 10204, 3.1.B

Certificato nr. MEST134329/2004/  
Prüfung/Test/Exam

Conferma ordine nr. MIO4006028  
Werk/Our Order/Nr.

Marchio di Fabbrica:  
Zeichen des Werkschneidens  
Trade mark  
Signe de l'usine productrice



Funzione del Collaudatore:  
Stempel des Werkschneidens  
Inspector's stamp/Fahrgen des Assesseyur



Oggetto Prove: - Ricotto lavorabile Pelato  
Prüfgegenstand/Werk inspect/Fahrgen

Tipo di Elaborazione: E+AOD  
Schweißverfahren/Werkzeugherstellung

Specifiche:  
Anforderungen / Requirements / Edigences

VALBRUNA 2002 410 OBSOLE  
ASME (1) SA479 2001 S41000 A (1)  
ASTM A479 2001 S41000 A  
SEC.II PTA 2001 EDITION  
Chemical analysis only.

AISI 410  
ASTM A182 2002 S41000 (2)  
EN 10088-3 95 1.4006 A

ASME (1) SA182 2001 S41000 CLASS2 (2)  
ASTM A276 2000A S41000 A  
EN 10272 2000 1.4006 A

(1) SEC.II PTA 2001 EDITION

Qualità: 410

Werkstoff/Grade/Usine

Marca: VAL1

Markenbezeichnung/Brand/Usine

Punzonatura: 410

Markenbezeichnung/Marking/Usine

| Pos. nr.<br>Pos. nr.<br>Nr. du poste | Oggetto<br>Description<br>Description du produit | Dimensioni - mm<br>Abmessungen<br>Dimensions | Tolleranza<br>Tolerance<br>Tolérance | Lunghezza - mm<br>Länge<br>Length | Colata<br>Schmelze<br>Heat | Pezzi<br>Stückzahl<br>Pieces | Peso - KG<br>Gewicht<br>Weight | Lotto nr.<br>Losn.<br>Lot nr. |
|--------------------------------------|--------------------------------------------------|----------------------------------------------|--------------------------------------|-----------------------------------|----------------------------|------------------------------|--------------------------------|-------------------------------|
| 0030                                 | Tondo                                            | 32,000                                       | K12-MIN                              | 5000 / 5500                       | 237411                     | 1                            | 642,0                          | 335800480                     |

Sono state soddisfatte tutte le condizioni richieste  
Die gestellten Anforderungen sind i. Anlage erfüllt  
The material has been finished in accordance with the requirements  
Le matériel a été traité conforme aux exigences

Controllo antimescolanza: OK  
Verwechslungsprüfung: zufrieden/stets durchgeführt  
Antimixing testing performed: OK  
Contrôle antémélange fait: r.s.t.

Controllo visivo e dimensionale: soddisfa le esigenze  
Beisichtigung und Ausmessung: ohne Beanstandung  
Visual inspection and dimensional check/satisfactory  
Contrôle visuel et dimensionnel satisfaisant

| TEST                                                     | Provetta/Probe<br>Reproducible Specimen<br>Repräsentative Probe<br>Repräsentative Probe | " C        | Proz.<br>Saggio<br>Proben<br>Proben | Snervamento<br>Biegeversuch<br>Biegeversuch<br>Rp 0,2%<br>N/mm2 | Snervamento<br>Zugversuch<br>Zugversuch<br>Rp 0,2%<br>N/mm2 | Resistenza<br>Zugversuch<br>Zugversuch<br>Rm<br>N/mm2 | Affievolgimento<br>Schweißversuch<br>Schweißversuch<br>A5<br>% | E 4d<br>% | Sirizione<br>Stanzversuch<br>Stanzversuch<br>Z<br>% | RA | Resilienza<br>Kerbschlagversuch<br>Kerbschlagversuch<br>J<br>Joules | Durezza<br>Härte<br>Härte<br>HB |
|----------------------------------------------------------|-----------------------------------------------------------------------------------------|------------|-------------------------------------|-----------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------|----------------------------------------------------------------|-----------|-----------------------------------------------------|----|---------------------------------------------------------------------|---------------------------------|
| Valori richiesti 1<br>Anforderungen 1<br>Value requested |                                                                                         | min<br>max |                                     | 380                                                             | -                                                           | 585<br>730                                            | -                                                              | 20        | -                                                   | 45 | -                                                                   | 167<br>220                      |
| A                                                        | 10.00                                                                                   | 20         | L                                   | 458                                                             |                                                             | 675                                                   | 30                                                             | 32        | 65                                                  | 65 |                                                                     | 205                             |

1) L=lunghezza/änge, Q=trasversale/querschnitt, T=temperatura/temperatur

## Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata/Heat<br>Schmelze/Heat | min 0,080<br>max 0,120 | 1,00 | 1,00 | 11,50<br>13,50 | 0,50 | 0,040 | 0,030 | - | - | - | - | - | - | - | - |
|------------------------------|------------------------|------|------|----------------|------|-------|-------|---|---|---|---|---|---|---|---|
|                              | C %                    | Si % | Mn % | Cr %           | Ni % | P %   | S %   |   |   |   |   |   |   |   |   |
| 237411                       | 0,139                  | 0,39 | 0,74 | 12,10          | 0,23 | 0,017 | 0,022 |   |   |   |   |   |   |   |   |

Made in Italy No welding or weld repair Material free from Mercury or radio-activity contamination  
The Quality Management System is Certified acc. Pressure Equipment Directive (97/23/EC) Annex 1, 2, 4, 3 by TÜV and LLOYD'S

DOUGLAS CHERO Spa

Quality Assurance  
P.C. STEFANO VITTORIO

Signo

COPIA CONFORME ALL' ORIGINALE  
ACCIAIERIE VALBRUNA S.P.A.  
FILIALE DI GORMANO

|                                   |                                                                                                                 |                 |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------|-----------------|
| Bolzano, 08/06/04<br>Mod. BRL 000 | Il collaudatore di stabilimento / der Werkssachverständige / Works Inspector / L'agent d'usine<br>R. Cristofari | Pagina - 1 di 1 |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------|-----------------|

*2004/2/1*

# MECCANICHE MORANDI s.r.l.

VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.949 • Fax 0331.302.948  
E-mail: meccmorandi@libero.it Codice Fiscale e Partita IVA 01779110129

CERTIFICATO DI COLLAUDO  
Inspection certificate

26738

N°6128/DCH DATE-16.11.04

CLIENTE- DOUGLAS CHERO Spa  
Customer

ORDINE-242000  
Order

BOLLA CONSEGNA N-3750  
Delivery note

## DESCRIZIONE DEL MATERIALE

## MATERIAL DESCRIPTION

| Item | Quantity | Article             | Material             | Heat n. |
|------|----------|---------------------|----------------------|---------|
| 1    | 6733     | VITI TE M 12 X 30,5 | ASTM A 193/A 193M B7 | AR4273  |

## ANALISI CHIMICA

## CHEMICAL ANALYSIS

| %        | C         | Mn   | Si   | Cr   | Mo   | S     | P     |
|----------|-----------|------|------|------|------|-------|-------|
| REQUIRED | min. 0.37 | 0.65 | 0.15 | 0.75 | 0.15 |       |       |
| VALUE    | max. 0.49 | 1.10 | 0.35 | 1.20 | 0.25 | 0.040 | 0.035 |
| HEAT n.  | 0,44      | 0,77 | 0,26 | 1,06 | 0,23 | 0,005 | 0,007 |
| AR4273   |           |      |      |      |      |       |       |

## CARATTERISTICHE MECCANICHE

## MECHANICAL REQUIREMENTS

|          | Rm.     | Rp.(0,2) | A4   | Z.   | Hardness |
|----------|---------|----------|------|------|----------|
| REQUIRED | min.    | min.     | min. | min. | max      |
|          | 860 MPa | 720 MPa  | 16%  | 50%  | 35 HRC   |
| ACTUAL   | 1032    | 945      | 17,5 | 53,5 | 32       |
| VALUE    |         |          |      |      |          |

## HEAT TREATMENT

Quenched at : 860 °C in oil  
Tempering : 2 hours at 593 °C min.

Visual and dimensional test = SATISFACTORY

This certificate has been tested in according with the specification included in your order.

## QUALITY CONTROL

- CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

22 NOV. 2004  
DOUGLAS CHERO Spa  
Quality Assurance .....  
P.C. STYANI VITTORIO  
Elett. ....

MECCANICHE MORANDI srl  
Via Magenta n. 27  
21015 LONATE POZZOLO (VA)

# ISELFA

STEEL FORGINGS  
ELECTRING FITTINGS

## CONTROLLO QUALITÀ

Certificato di conformità  
Compliance certificate  
Gemeins Zeugnis  
UNI EN 10204/3.1.B

S.p.A. - C.F./P.IVA VAT IT 00189520125

21048 SOLBIATE ARNO (Va) Italy - Corso Roma, 22  
P.O. BOX 21 - TELEFONO +39 (0331) 99.30.08  
FAX FORGINGS +39 (0331) 99.15.35 - FAX FITTINGS +39 (0331) 99.46.77



N° 13618 Data Date 21.02.03

CLIENTE  
Customer  
Kunde DOUGLAS CHERO SPA

ORDINE N°  
Order  
Bestellung 221882

DATA  
Date  
Datum 22.10.02

RIMESSO N°  
Delivery note  
Lieferschein 300290

DATA  
Date  
Datum 21-02-03

N° PEZZI  
Pieces  
Stückzahl 1.200 +  
600

DESCRIZIONE - Description - Zeichnung

DISEGNO N° - Drawing - Zeichnung

INDICE - Last revision - Verzeichnis

CAPPELLI 1.1/2"-800BB Dis. N6/8

TIPO ACCIAIO  
Steel type  
Stahl A 105 B1LL.60

COLATA  
Heat  
Schmelze 79315/60

FORNITORE  
Supplier  
Lieferant RIVA ACCIAIO SPA

### COMPOSIZIONE CHIMICA / Chemical composition / Chemische Zusammensetzung

| %                                           | C      | Mn     | Si     | Cr     | Ni     | Mo    | V      | P      | S      | Cu     | Nb    |
|---------------------------------------------|--------|--------|--------|--------|--------|-------|--------|--------|--------|--------|-------|
| RICHIESTA min<br>Requested<br>Erforderliche |        | 0.600  |        |        |        |       |        |        |        |        |       |
| max                                         | 0.350  | 1.050  | 0.350  | 0.300  | 0.400  | 0.120 | 0.030  | 0.040  | 0.050  | 0.400  | 0.020 |
| FORNITA<br>Supplied<br>Wirkliche            | 0.1600 | 1.0900 | 0.2000 | 0.0700 | 0.0600 |       | 0.0220 | 0.0100 | 0.0120 | 0.1500 |       |

### PROVA JOMINY / Jominy test / Stümschreckversuch

| HRC                                         |      |      |      |      |      |      |      |      |      |      |                     |
|---------------------------------------------|------|------|------|------|------|------|------|------|------|------|---------------------|
| RICHIESTA min<br>Requested<br>Erforderliche |      |      |      |      |      |      |      |      |      |      | GRANO<br>Grain size |
| max                                         | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | Korngrösse          |
| FORNITA<br>Supplied<br>Wirkliche            |      |      |      |      |      |      |      |      |      |      | 6                   |

### CARATTERISTICHE MECCANICHE / Mechanical properties / Mechanische Eigenschaften

Normalizzato ☐ Bonificato ☐

| Ø PROVETTA<br>Ø sample<br>Ø probest | RP 0,2%<br>Yield strenght 0,2%<br>0,2% Grenze | R<br>Tensile strenght<br>Zugfestigkeit | AC %<br>Elongation %<br>Dehnung % | Z %<br>Reduc. of area %<br>Einschnürung % | KCU<br>Impact value<br>Kerbschlag |
|-------------------------------------|-----------------------------------------------|----------------------------------------|-----------------------------------|-------------------------------------------|-----------------------------------|
| mm                                  | N/mm²                                         | N/mm²                                  | Ld = Cd                           |                                           | J (joule)                         |
| 30                                  | 320                                           | 514                                    | 32                                | 56                                        | 0 / 0 / 0                         |

TRATT. TERMICO  
Heat Treatment  
Wärmebehandlung

NORMALIZZAZIONE

DUREZZA RICHIESTA  
Requested hardness  
Festigkeits

N/mm²

DUREZZA RISCONTRATA N/mm²  
Checked hardness  
Finden harte

|   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

CONTROLLI  
Tests  
Ausmabetest

C.D.C.  
MAGNAFLUX 100%  
VISIVO 100%

SI  
NO  
ST

DIMENSIONALE  
ALTRI

POSITIVO

DOUGLAS CHERO Spa NO

ALLEGATI  
Enclosed  
Anlage

ANALISI CHIMICA ACCIAIERIA  
CERTIFICATO TRATT. TERMICO

SI  
NO

PRODOTTO AUTOCERTIFICATO

Quality Assurance

24 FEB. 2003

P.C. STEFANO VITTORIO

Sign

NOTE  
Remarks  
Bemerkungen

TRATT.: RISCALDO A 900C PER 1 ORA OGNI 25mm DI SPESSORE POI  
RAFFREDDAMENTO IN ARIA CALMA.  
SIGLA DI COLATA "AH"

CONTROLLO QUALITÀ  
QUALITY CONTROL  
QUALITÄTSSTELLE

ISELFA S.p.A.  
UFFICIO CONTROLLO QUALITÀ  
STAMPATO IN ITALIA

COMPILATORE

ISELFA S.p.A.  
SOLBIATE ARNO (VA)

**FRANCE**

4 N. de commande usine - Werksbestellnummer - Works order number  
N. Nr No 80208 FUGE TEJE 01/01 8Z101000 Q

**CERTIFICATO COLLAUDO DI ACCETTAZIONE B**  
**CERTIFICAT DE RECEPTION 3.1.B**  
**INSPECTION CERTIFICATE B**

Usine Productrice **UGINE**  
Hersteller **UGINE** T4: 04.78.88.30.30  
Manufacturier **F 73403 UGINE CEDEX** Fax: 04.78.88.30.51

EN 10204 / 3.1.B

Produit **IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE**  
Erzeugnisform **IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE**  
Produkt **IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE**

Client edou des/nature - Besteller und/oder Empfänger - Purchaser and/or Consignee  
**TECNOMECCANICA SRL** N. de commande client - Kundenbestellnummer - Purchaser order number  
**364**

Nuance et spécifications techniques - Stahlsorte und Prüfbedingungen - Quality and Specifications  
**IMA4006 410 AISI 410 UNS S41000**  
**SPEC. SDA 09 DU 20/11/01 (SAUF MN)**

Etat de livraison - Lieferzustand - As delivered (1)  
**TEMPERATO RINVENUTO**

Traitement de Référence - Probestreifenbehandlung - Treatment of test samples (1)

| Identification du produit<br>Erzeugnis Benennung - Product Identification<br>N. de cde usine N. de poste N. de Couille<br>Werksbestellnummer Post Nr Schmelz Nr<br>Works order number Heat No | Nombre<br>Stückzahl<br>Pieces Nbr | Profil<br>Profile<br>Shape | Dimension<br>Ausmessung<br>Dimension | Longueur<br>Länge<br>Length | Masse<br>Gewicht<br>Weight |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|----------------------------|--------------------------------------|-----------------------------|----------------------------|
| 8Z101 000 350031                                                                                                                                                                              | 190                               | TONDO                      | 20,000                               |                             | 1974 KG                    |

| Prélèvement<br>Probennummer<br>Test N. | Demande<br>Vorschlag<br>Request | Température d'essai<br>Prüftemperatur<br>Test Temperature | Traction - Zugversuch - Tensile test                  |               |             | Allongement<br>Bruchdehnung<br>Elongation | Résistance à la traction<br>Zugfestigkeit<br>Tensile strength | Dureté<br>Härte<br>Hardness | Type<br>Form<br>Type | Résistance à la traction<br>Zugfestigkeit<br>Tensile strength | Température<br>Prüftemperatur<br>Test Temperature | Kerbschlagzähigkeit - Notch Toughness | Valeurs individuelles<br>Einzelwerte<br>Individual Values | Moyenne<br>Mittelwert<br>Average | Dureté<br>Härte<br>Hardness |
|----------------------------------------|---------------------------------|-----------------------------------------------------------|-------------------------------------------------------|---------------|-------------|-------------------------------------------|---------------------------------------------------------------|-----------------------------|----------------------|---------------------------------------------------------------|---------------------------------------------------|---------------------------------------|-----------------------------------------------------------|----------------------------------|-----------------------------|
|                                        |                                 |                                                           | Limite d'élasticité<br>Streckgrenze<br>Yield Strength | 0,2 %<br>28 A | 1 %<br>28 B |                                           |                                                               |                             |                      |                                                               |                                                   |                                       |                                                           |                                  |                             |
| 39 B                                   | (3)                             | 20                                                        | MPA                                                   | MPA           | MPA         | 27                                        | 28                                                            | 30                          | 31                   | 32                                                            | 33                                                | 36                                    | 36                                                        | 37                               | HB                          |
|                                        |                                 |                                                           | 275                                                   |               | 585         | 20                                        | 45                                                            |                             |                      |                                                               |                                                   |                                       |                                                           |                                  | 237                         |

| N. de Prélèvement<br>Probennummer<br>Test N. | Demande<br>Vorschlag<br>Request | Min | Max | N. de Couille<br>Schmelz Nr<br>Heat N. | Analyse/Produit-Stock<br>analyse-Check-Analyse | C     | SI   | MN   | NI   | CR    | S     | P     | 48 | 50 |
|----------------------------------------------|---------------------------------|-----|-----|----------------------------------------|------------------------------------------------|-------|------|------|------|-------|-------|-------|----|----|
|                                              |                                 |     |     |                                        |                                                |       |      |      |      |       |       |       |    |    |
| 500031                                       |                                 |     |     |                                        |                                                | 0,107 | 0,42 | 0,38 | 0,35 | 12,18 | 0,022 | 0,019 |    |    |

| Mode<br>d'élaboration<br>Erzeugnis-<br>Herstellung<br>Making process | Demande<br>Vorschlag<br>Request | Min | Max | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |
|----------------------------------------------------------------------|---------------------------------|-----|-----|----|----|----|----|----|----|----|----|----|
|                                                                      |                                 |     |     |    |    |    |    |    |    |    |    |    |
| Electrique<br>Elektrisch<br>Electric                                 |                                 |     |     |    |    |    |    |    |    |    |    |    |

IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE

**06 MAG. 2004**

**DOUGLAS CHERO Spa**

Quality Assurance

P.C. STEFANI VITTORIO

Sign: *[Signature]*

|                                                                |                                                                                                                                                                |                                                                                                                          |                                                                                                             |
|----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| (3) L = Long<br>Länge - Long<br>T = Travers<br>Quer-Transverse | (1) TE = Trempé à l'eau - Wasserhärtung - Waterquench<br>TH = Trempé à l'huile - Ölhärten - Oil Quench<br>A = Hypertrémpé - Lösungsgeglüht - Solution annealed | R = Revenu - Anlassen - Tempered<br>RT = Recuit - Geglüht - Annealed<br>TRM = Recuit maxi - Weichgeglüht - Maxd annealed | Ugine, le 15-01-04<br>L'Agent Réceptionnaire de l'usine<br>Der Werkasschwerzuständige<br>The Work Inspector |
|----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|

|                                                                          |                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |   |
|--------------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| (4) A l'état de référence<br>Zum Bezug Zustand<br>At reference condition | (5) A l'état de livraison<br>In Lieferzustand<br>In state of delivery | Contrôles de marquage, d'aspect et de dimension: satisfaisants<br>Bezeichnung, Beschäftigung und Ausmessung: ohne Beanstandung<br>Marking, inspection and measurement: without objection<br>Nous certifions que les produits énumérés ci-dessus sont conformes aux prescriptions de la commande<br>Wir bestätigen hiermit dass die obengenannten Erzeugnisse den Bestellevorschriften entsprechen<br>We certify hereby that the above mentioned products are consistent with the order prescriptions | 7 |
|--------------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|

H. Mayet



Postfach 10 13 49  
D - 44713 Bochum  
Blumenfeldstr. 18  
D - 44795 Bochum

Telefon (0234) 4595 - 0  
Telefax (0234) 43 23 87

## Abnahmeprüfzeugnis DIN EN 10204 - 3.1B

Inspection certificate

**Besteller:** Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt  
**Customer:**

**Bestell-Nr.:** Lurgi Job - No.: 69690-10  
**Order no.:** Lurgi OGC PO.-No.: 4567569-000 to -001/1.69690/136

**Project Name :** 2nd Zagros Methanol Plant - Iran

**Auftrag-Nr.:** HH - 02535  
**Job no.:**

### Lieferumfang / range:

| Pos   | Stck.<br>pcs. | Gegenstand<br>object                                  | DN | PN      | Werkstoff<br>material | Bemerkung<br>comment        |
|-------|---------------|-------------------------------------------------------|----|---------|-----------------------|-----------------------------|
| 00310 | 4             | Globe valve<br>RB BB BW Sch.160<br>Seat + disk stell. | 1" | Cl.1500 | A182/F22 C.3          | Valve Ident - No.: " V481 " |

**Auslegung + Prüfung nach** API 602 - BS EN ISO 15761, API 598 / BS EN 12266-1  
**Design and tests acc. To** ASME B16.34 - B16.25 - B16.11 - B1.20.1

**Sicht- und Funktionsprüfung:** o.k.  
**visual and functional test:**

**Festigkeits-/Dichtheitsprüfung:** Festigkeit / shell test = 388 bar Wasser / water (60 sec)  
**strength-/tightness-test:** Dichtheit Sitz / seat = 285 bar Wasser / water (60 sec)  
Rückdichtung / backseat = 285 bar Wasser / water (60 sec)  
Dichtheit Sitz / seat = 6 bar Luft / air (60 sec)

**Prüfungsergebnis:** ohne Beanstandung !  
**result:** no complaint !

*W. Glass*  
Bochum, den 28.02.2005 - WG KLAUS UNION GmbH & Co. KG  
Werksachverständiger:  
Manufacturer's authorized inspector: Walter Glass

**Anlage:** Dokumentation gemäß Material-Dokumentationsdeckblatt  
**enclosure** Documentation acc. to material cover sheet



# Materialdokumentations - Deckblatt

## Material Cover Sheet

| Datum / Date | 25.02.2005 |
|--------------|------------|
|--------------|------------|

Seite / Page 1

Sachbearbeiter

Person in charge

W. Glass

Walli gß

**Kommissions-Nr. /  
Reference No.**

HH-02535

Lurgi Job - No.: 69690-10  
Lurgi OGC PO - No.: 4567569 - 000 to -001/ 1.69690 / 136

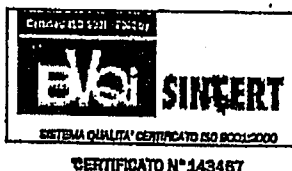
Project Name: 2nd Zagros Methanol Plant - Iran

[illegible]

# Bonomi s.r.l.

## STAMPAGGIO A CALDO DELL'ACCIAIO

23861 CESANA BRIANZA (Lo) Via Carlo Porta, 8  
☎ 031/656798 ☎ 031/657597



Partita I.V.A. 02418370132  
R.J. Lecco N. 15934  
R.E.A. Lecco N. 288235

002612900

TEST CERTIFICATE N° 040501  
CERTIFICATO DI COLLAUDO  
3.1B-AS-TO- SECONDO  
UNI EN 10204  
DATA: 23/07/2004

Spett.le Ditta  
**DOUGLAS CHERO Spa.**  
Loc. Pradaglie  
29013 CARPANETO P.NO (Po)

|                                                         |  |                                     |        |                                                             |       |                                                    |                                         |                            |                           |                   |        |
|---------------------------------------------------------|--|-------------------------------------|--------|-------------------------------------------------------------|-------|----------------------------------------------------|-----------------------------------------|----------------------------|---------------------------|-------------------|--------|
| Mod. 2M1<br>CUSTOMER ORDER - ORDINE CLIENTE             |  | P.O.                                |        | DOCUMENTO DI TRASPORTO                                      |       | INVOICE-FATTURA                                    |                                         |                            |                           |                   |        |
| 241217 pos. 2                                           |  |                                     |        | 187 del 14/07/2004                                          |       |                                                    |                                         |                            |                           |                   |        |
| DESCRIPTION OF PARTICULAR - DESCRIZIONE DEL PARTICOLARE |  |                                     |        | TYPE AND MATERIAL SPECIFICATIONS-TIPO E SPECIFICA MATERIALE |       |                                                    |                                         |                            |                           |                   |        |
| BODY                                                    |  |                                     |        | ASTM A182 F22                                               |       |                                                    |                                         |                            |                           |                   |        |
| NUMERO COLATA<br>HEAT NUMBER                            |  | CHEMICAL ANALYSIS - ANALISI CHIMICA |        |                                                             |       |                                                    |                                         |                            |                           |                   |        |
| 2A409227                                                |  | C                                   | SI     | MN                                                          | P     | S                                                  | CU                                      | CR                         | NI                        | MO                | V      |
| STELL. MILL.<br>ACCIAIERIA                              |  | 0.150                               | 0.150  | 0.504                                                       | 0.009 | 0.015                                              | 0.078                                   | 2.256                      | 0.038                     | 0.9878            | 0.0111 |
| SIDERPOTENZA Spa                                        |  | AL                                  | SN     |                                                             |       |                                                    |                                         |                            |                           |                   |        |
| ST.M. CERT. N.<br>CERT. ACC. N.                         |  | 0.0302                              | 0.0048 |                                                             |       |                                                    |                                         |                            |                           |                   |        |
| HS 246                                                  |  |                                     |        |                                                             |       |                                                    |                                         |                            |                           |                   |        |
| HEAT CODE ON<br>FORGING                                 |  | DISEGNO DEL FORGIATO                |        | QUANTITY QUANTITA'                                          |       | MECHANICAL PROPERTIES - CARATTERISTICHE MECCANICHE |                                         |                            |                           |                   |        |
| BAV                                                     |  | N6/9S                               |        | 193                                                         |       | YIELD<br>STRENGTH P.S.I.<br>SHEARV.<br>N/mm2       | TENS.<br>STRENGTH P.S.I.<br>ROTT. N/mm2 | ELONG<br>2" 50<br>ALLUNG % | RED OF AREA<br>% CONTRAZ. | H.B.              |        |
| IMPACT VALUE - RESILIENZA                               |  |                                     |        |                                                             |       | 473                                                | 594                                     | 27,60                      | 75,40                     | 193<br>190<br>190 |        |
| HEAT TREATMENT - TRATTAMENTO TERMICO                    |  |                                     |        |                                                             |       |                                                    |                                         |                            |                           |                   |        |
| Normalizing H.T. 970° C.<br>Tempering 680° C.           |  |                                     |        |                                                             |       |                                                    |                                         |                            |                           |                   |        |

### REMARKS

- 1) The result of chemical analysis is a true and correct copy of the mill certificate issued, by the manufacturer of the steel employed, or by the laboratory which has determined it.  
\* I risultati delle analisi chimiche è la corretta trascrizione del certificato di colata emesso dall'acciaieria o dal laboratorio che li ha rilevati.
- 2) The material or components shipped under the above order number did not come in direct contact with mercury or any of its components; or with any mercury containing devices employing a single boundary of containment, during the manufacturing process inspection or storage.  
\*\* Il materiale o i particolari spediti per questi ordini non sono mai venuti a contatto diretto con mercurio o con elementi contenenti mercurio durante la fase di lavorazione, controllo o immagazzinamento.

I certify these tests to be correct as  
contained in the records of the company  
certifico che tutti i dati sono corretti  
e uguali a quelli registrati presso Bonomi

28 LUG. 2004  
**DOUGLAS CHERO Spa**

Quality Assurance .....  
P.C. STEFANO VITTORIO  
Sign. ....

Q.A. OFFICE  
UFFICIO QUALITA'  
Bucchi Rosalba



**CERTIFICATO DI  
 COLLAUDO DOPO T.T.  
 IN ACCORDO EN 10204-3.1.B**

DOCUMENTO  
DOCUMENT

DATA  
DATE

5138

13/07/04

| CLIENTE / Customer | N.DdT | DATA / Date | MATERIALE / Material | SPESS.MAX / thickness | RICHIESTE / Request |
|--------------------|-------|-------------|----------------------|-----------------------|---------------------|
| 0732 / BONOMI SRL  | 172   | 06/07/2004  | F22 Cl 3             | 70                    | 156/207 HB          |

| Pezzo/<br>Piece | N. disegno/<br>Drawing | Ordine/<br>Order | Commessa/<br>Commission | N. colata/<br>Heat | N. Pz.<br>Trattati /<br>N° Worked<br>Place | PESO<br>KG /<br>Weight | N°PZ<br>prova /<br>N° Test<br>Place | DUREZZE<br>RILEVATE<br>/ Hardness | Car   |
|-----------------|------------------------|------------------|-------------------------|--------------------|--------------------------------------------|------------------------|-------------------------------------|-----------------------------------|-------|
| CORPI           | N6/9S                  | BAV              |                         | 2A409227           | 220                                        | 1060                   |                                     | HB 197                            | 28341 |

**Bonomi srl**  
 UFFICIO QUALITÀ  
 Firma \_\_\_\_\_  
 Data 13/07/04

**LAVORAZIONE E/O TRATTAMENTO TERMICO RICHIESTO / HEAT TREATMENT REQUEST**

| Cod.<br>TT | Descrizione/<br>Description      | T.Part.<br>°C | T Salita<br>h | T. Perm.<br>°C | T Perm<br>h | Raffredd/<br>Cool | Impianto/<br>Ofen | Specifiche/<br>Detailed | Altre Richieste/<br>Other Requests: |
|------------|----------------------------------|---------------|---------------|----------------|-------------|-------------------|-------------------|-------------------------|-------------------------------------|
| TD         | NORMALIZZAZIONE /<br>Normalizing |               |               | 970 ✓          | 1,5         | ARIA              | 9                 | TAB.IL03                |                                     |
| R          | RINVENIMENTO / Tempering         |               |               | 680 ✓          | 3           | ARIA              | 1                 |                         |                                     |

**DOUGLAS CHERO Spa**

Quality Assurance .....  
 P.C. STEFANO VITTORIO

Note / Notes:

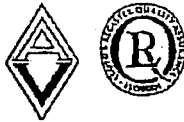
Sign \_\_\_\_\_

**SORBIT**  
 s.p.a. Giulio Pomarini



| Scheda n°  | Data  | Revisione | Chi archivia |
|------------|-------|-----------|--------------|
| S-Pq07/1-1 | 01/02 | 0         | RSA          |

# Acciaierie Valbruna S.p.A.



CERTIFICATO DI COLLAUDO  
ABNAHMEPRUEFZEUGNIS  
INSPECTION CERTIFICATE  
CERTIFICAT DE RECEPTION  
EN 10204, 3.1.B

032  
Felic

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.  
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

Cliente / Besteller/Kunde/Client  
ARGOSS SNC DEI F.LLI ASSOLARI  
VIA LEVATA N.19/A  
24068-SERATE (BG)-BG

Avviso di Spedizione: *Autog/1002*  
Unterbreitung/Posting/Befehl

Certificato nr: MEST134329/2004/  
Fertigung/Produktion

Conferma ordine nr: MIO4006028  
Werk/Our OrderRef. nr.

Produttore: STABILIMENTO DI BOLZANO  
Hersteller/Hersteller/Hersteller

Ordine nr: ORD.TEL  
Bestellnummer/Order/Commande

Marchio di Fabbrica:  
Zeichen des Herstellers  
Trade mark  
Sigle de l'usine productrice



Funzione del Collaudatore:  
Stempel des Werkseinschreibenden  
Inspector's stamp/Funktion des Insasseurs



Oggetto Prove: - Ricotto lavorabile Pelato  
Prüfgegenstand/Item inspected/Fertigungs

Tipo di Elaborazione: E+AOD  
Herstellungsmethode/Manufacturing process/Mode d'elaboration

Specifiche:  
Anforderungen / Requirements / Exigences

VALBRUNA 2002 410 OBSOLE  
ASME (1) S4479 2001 S41000 A (1)  
ASTM A479 2001 S41000 A  
SEC.II P.T.A 2001 EDITION  
Chemical analysis only.

AISI 410  
ASTM A182 2002 S41000 (2)  
EN 10088-3 95 1.4006 A

ASME (1) SA182 2001 S41000 CLASS2 (2)  
ASTM A276 2000A S41000 A  
EN 10272 2000 1.4006 A

(1) SEC.II P.T.A 2001 EDITION

Qualità: 410  
Werkstoff/Order/Usine

Marca: VAL1

Punzonatura: 410  
Kennzeichnung/Markierung/Usine

| Pos. nr.<br>Item nr.<br>Nr. do posle | Oggetto<br>Baugestand<br>Produce description<br>Description du produit | Dimensioni - mm<br>Abmessungen<br>Dimension<br>Dimension | Tolleranza<br>Tolerance<br>Tolérance | Lunghezza - mm<br>Länge<br>Length<br>Longueur | Colata<br>Schmelze<br>Heat<br>Coulée | Pezzi<br>Stückzahl<br>Pieces<br>Pièces | Peso - KG<br>Gewicht<br>Weight<br>Poids | Lotto nr.<br>Losn.<br>Lot nr.<br>Lot nr. |
|--------------------------------------|------------------------------------------------------------------------|----------------------------------------------------------|--------------------------------------|-----------------------------------------------|--------------------------------------|----------------------------------------|-----------------------------------------|------------------------------------------|
| 0030                                 | Tondo                                                                  | 32,000                                                   | K12-MIN                              | 5000 / 5500                                   | 237411                               | 1                                      | 642,0                                   | 335600480                                |

Sono state soddisfatte tutte le condizioni richieste  
Die geforderten Anforderungen sind erfüllt  
The material has been furnished in accordance with the requirements  
Le matériel a été fourni conforme aux exigences

Controllo anti-miscelanza: OK  
Vermischungsprüfung: spezialanalytisch durchgeführt  
Anti-mixing testing performed: OK  
Contrôle anti-mélange fait: n.a.

Controllo visivo e dimensionale: soddisfa le esigenze  
Blickprüfung und Abmessung: ohne Beanstandung  
Visual inspection and dimensional check/satisfactory  
Contrôle visuel et dimensionnel: satisfaisant

| TEST                                                                    | Prove/Prüfung<br>Spezimen/Examens<br>Longitudinal<br>Transversal<br>Vital Data, Thickness<br>Long. data, etc.<br>mm | ° C        | Posit.<br>55g/10<br>Position<br>Lage<br>Position | Snervamento<br>Zugversuch<br>Yield Stress<br>Elastic strength<br>Rp 0,2%<br>N/mm2 | Snervamento<br>Zugversuch<br>Yield Stress<br>Elastic strength<br>Rp 0,2%<br>N/mm2 | Resistenza<br>Zugversuch<br>Tensile strength<br>Resistance à traction<br>Rm<br>N/mm2 | Allungamento<br>Zugversuch<br>Elongation<br>Elongation<br>Allongement<br>A5<br>%<br>E 4d<br>% | Strizione<br>Zugversuch<br>Reduction of area<br>Striction<br>Zugversuch<br>Reduction of area<br>Striction<br>Zugversuch<br>Reduction of area<br>Striction | Resilienza<br>Kerbschlagenergie<br>Impact Value<br>Resilience<br>Kerbschlagenergie<br>Impact Value<br>Resilience | Durezza<br>Härten<br>Hardness<br>Dureté<br>HB |
|-------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|------------|--------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|
| Valori richiesti 1<br>Anforderungen/Required values<br>Valeurs requises |                                                                                                                     | min<br>max |                                                  | 380                                                                               | -                                                                                 | 585<br>730                                                                           | -<br>20                                                                                       | -<br>45                                                                                                                                                   | -                                                                                                                | 167<br>220                                    |
| A                                                                       | 10,00                                                                                                               | 20         | L                                                | 458                                                                               |                                                                                   | 675                                                                                  | 30<br>32                                                                                      | 65<br>65                                                                                                                                                  |                                                                                                                  | 205                                           |

1) L=Longitudinal/Tangente, Q=Transversale/Quers., T=Tangente/Longitudinal

## Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata / Heat<br>Schmelze/Coulée | min 0,040<br>max 0,160 | -<br>1,00 | -<br>1,00 | 11,50<br>13,50 | -<br>0,50 | -<br>0,040 | -<br>0,030 | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- | -<br>- |
|----------------------------------|------------------------|-----------|-----------|----------------|-----------|------------|------------|--------|--------|--------|--------|--------|--------|--------|--------|
|                                  | C %                    | Si %      | Mn %      | Cr %           | Ni %      | P %        | S %        |        |        |        |        |        |        |        |        |
| 237411                           | 0,139                  | 0,39      | 0,74      | 12,10          | 0,23      | 0,017      | 0,022      |        |        |        |        |        |        |        |        |

Made in Italy No welding or weld repair Material free from Mercury or radio-activity contamination  
The Quality Management System is Certified acc. Pressure Equipment Directive (97/23/EC) Annex 1, 2, 4.3 by TÜV and LLOYD'S

DOUGLAS CHERO SpA

Quality Assurance  
P.C. STEFANO VITTORIO

Signo

COPIA CONFORME ALL' ORIGINALE  
ACCIAIERIE VALBRUNA S.P.A.  
FILIALE DI CORMANO

|                                  |                                                                                                                |                 |
|----------------------------------|----------------------------------------------------------------------------------------------------------------|-----------------|
| Bolzano, 08/06/04<br>Mod. BBL000 | Il collaudatore di stabilimento / der Werkseinschreibende / Works inspector / L'agent d'usine<br>R. Cristoforo | Pagina - 1 di 1 |
|----------------------------------|----------------------------------------------------------------------------------------------------------------|-----------------|

202072/1

# MECCANICHE MORANDI s.r.l.

VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.949 • Fax 0331.302.948  
E-mail: meccmorandi@libero.it Codice Fiscale e Partita IVA 01779110129

CERTIFICATO DI COLLAUDO  
Inspection certificate

26320

N°6126/DCH DATE-09.11.04

CLIENTE- DOUGLAS CHERO Spa  
Customer

ORDINE-242000  
Order

BOLLA CONSEGNA N-3658  
Delivery note

## DESCRIZIONE DEL MATERIALE

## MATERIAL DESCRIPTION

| Item | Quantity | Article              | Material                 | Heat n. |
|------|----------|----------------------|--------------------------|---------|
| 1    | 2000     | VITI TE. M 12 X 30,5 | B16<br>ASTM A 193/A 193M | A02869  |

## ANALISI CHIMICA

## CHEMICAL ANALYSIS

| %             | C     | Mn   | Si   | Cr   | Mo   | S     | P     | V    | Al    |
|---------------|-------|------|------|------|------|-------|-------|------|-------|
| REQUIRED min. | 0,36  | 0,45 | 0,15 | 0,80 | 0,50 |       |       | 0,25 |       |
| VALUE max.    | 0,47  | 0,70 | 0,35 | 1,15 | 0,65 | 0,040 | 0,035 | 0,35 | 0,015 |
| HEAT n.       | 0,415 | 0,57 | 0,26 | 0,98 | 0,60 | 0,003 | 0,007 | 0,28 | 0,008 |

## CARATTERISTICHE MECCANICHE

## MECHANICAL REQUIREMENTS

|               | Rm.     | Rp. (0,2) | A4   | Z.   | Hardness |
|---------------|---------|-----------|------|------|----------|
| REQUIRED min. | min.    | min.      | min. | min. | max      |
|               | 860 MPa | 725 MPa   | 18%  | 50%  | 35 HRC   |
| ACTUAL VALUE  | 987     | 912       | 20,6 | 59,5 | 31       |

## HEAT TREATMENT

Quenched at : 925°C to 954°C oil  
Tempering : 2 hours at 650°C min.

Visual and dimensional test = SATISFACTORY

This certificate has been tested in according with the specification included in your order.

- CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

15 NOV. 2004

**DOUGLAS CHERO Spa**

Quality Assurance .....  
P.C. STEFANO VITTORIO  
Sign. ....

QUALITY CONTROL

MECCANICHE MORANDI srl  
Via Magenta n. 27  
21015 LONATE POZZOLO (VA)



STEEL FORGINGS  
ELECTRICAL FITTINGS

### CONTROLLO QUALITÀ

Certificato di conformità  
Compliance certificate  
Gemeins. Zeugnis  
UNI EN 10204/3.1.B

S.p.A. - C.F./P. IVA IT 00189520125

21048 SOLBIATE ARNO (Va) Italy - Corso Roma, 22  
Casella Postale n. 57 - TELEFONO +39 0331 99 30 08  
FAX FORGINGS +39 0331 99 15 35 - FAX FITTINGS +39 0331 99 46 77



N° 17900 Data 19.01.05

CLIENTE Customer DOUGLAS CHERO SPA  
ORDINE N° Order 241946  
Kunde Bestellung

RIMESSO N° Delivery note  
Lieferschein 500066  
DATA Date 19-01-05  
N° PEZZI Pieces 96  
Stückzahl

DESCRIZIONE - Description - Beschreibung  
DISEGNO N° - Drawing - Zeichnung  
INDICE - Last revision - Verzeichnis  
CAPPELLI 1.1/2"-800BB Dis. N6/8

TIPO ACCIAIO Steel type ASTM-A.162 F.22 C/LAVORAZIONE 414853/60  
Stahl Schmelze  
FORNITORE Supplier ACCIAIERIE VALBRUNA SPA  
Lieferant

### COMPOSIZIONE CHIMICA / Chemical composition / Chemische Zusammensetzung

| %                                               | C    | Mn   | Si   | Cr   | Mo   | P     | S     |  |  |  |  |
|-------------------------------------------------|------|------|------|------|------|-------|-------|--|--|--|--|
| RICHIESTA min<br>Requested<br>Erforderliche max |      |      |      |      |      |       |       |  |  |  |  |
| FORNITA Supplied<br>Wirkliche                   | 0,09 | 0,45 | 0,41 | 2,22 | 0,91 | 0,024 | 0,003 |  |  |  |  |

### PROVA JOMINY / Jominy test / Stähabschreckversuch

| HRC                                             |      |      |      |      |      |      |      |      |      |      |      |                                |
|-------------------------------------------------|------|------|------|------|------|------|------|------|------|------|------|--------------------------------|
| RICHIESTA min<br>Requested<br>Erforderliche max | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | GRANO Grain size<br>Korngrösse |
| FORNITA Supplied<br>Wirkliche                   |      |      |      |      |      |      |      |      |      |      |      |                                |

### CARATTERISTICHE MECCANICHE / Mechanical properties / Mechanische Eigenschaften

Normalizzato ☐ Bonificato ☐

| Ø PROVETTA<br>Ø sample<br>Ø probest | RP 0,2%<br>Yield strenght 0,2%<br>0,2% Grenze | R<br>Tensile strenght<br>Zugfestigkeit | AC %<br>Elongation %<br>Dehnung % | Z %<br>Reduc. of area %<br>Einschnürung % | KCU<br>Impact value<br>Kerbschlag |
|-------------------------------------|-----------------------------------------------|----------------------------------------|-----------------------------------|-------------------------------------------|-----------------------------------|
| mm                                  | N/mm²                                         | N/mm²                                  | Lo = [d                           |                                           | J (joule)                         |
| 12,5                                | 462                                           | 621                                    | 30                                | 74                                        | 0 / 0 / 0                         |

TRATT. TERMICO Heat Treatment Warmbehandlung  
NORMALE RINVENIM  
DUREZZA RICHIESTA Requested hardness Festigkeit  
N/mm²

DUREZZA RISCONTRATA N/mm²  
Checked hardness  
Finden harte

CONTROLLI Tests Ausmaßtest  
G.D.C. MAGNAFLUX 100%  
VISIVO 100%  
SI  
NO  
SI

ALLEGATI Enclosed Anlage  
ANALISI CHIMICA ACCIAIERIA  
CERTIFICATO TRATT. TERMICO  
SI  
NO  
PRODOTTI AUTOCERTIFICATO

NOTE Remarks Bemerkungen  
TRATT. RISCALDO A 950C PER 1 ORE OGNI 25MM E RAFFREDDATI IN ARIA  
RISCALDO A 735/750C PER 2 ORE OGNI 25MM E RAFFREDDATI IN ARIA.  
SIGLA DI COLATA "BA"

CONTROLLO QUALITÀ  
QUALITY CONTROL  
QUALITÄTSSTELLE

ISELFA S.p.A.  
SOLBIATE ARNO (VA)

COMPILATORE

ISELFA S.p.A.  
UFFICIO CONTROLLO QUALITÀ  
STAMPAGGIO

**Acciaierie**  
**Valbruna S.p.A.**

36100 VICENZA (Italia) - Viale della scienza, 25 z.l.

Stab.: 36100 BOLZANO (Italia) - Via A. Volta, 4

Cliente / Besteller/Kunde:  
INOX MECC S.A.S. DI BELLEBONO F. & C.  
VIA CORTENOVA

24050 - CIVIDATE AL PIANO (BG) - BG

Produzione: ACCIAIERIE VALBRUNA S.P.A.

Hersteller/Werk/Produktion

Avviso di Spedizione: A-VI03031911  
Unternehmens-Postfach 1906/L

Ordine nr: 16/05/03  
Bestell-Nr. oder Kunden-Nr.

Tipo di Elaborazione: E+AOD  
Erweiterungsschmelzverfahren

Certificato nr: MEST058325/2003/  
Prüfzeugnis-Nr.

Conferma ordine nr: MI03003762  
Werk- oder Kunden-Nr.

Marchio di Fabbrica:  
Zeichen des Herstellers  
Trade mark  
Signe de l'usine productrice



Punzone del Collaudatore:  
Stempel des Werkstoffverständigen  
Stempel à l'usage l'inspecteur de l'ouvrage

Oggetto Prova: Ricotto lavorabile Trafilato  
Prüfgegenstand/Prüfgegenstand/Prüfgegenstand

## Specifiche:

Anforderungen / Requirements / Bedingungen

VALBRUNA 2002 410 A,CF 0

ASTM A182 2000C S41000 CLASS2 (M)

EN 10272 2000 1.4006 A,CF 0

(M) SEQ. II FTA 2001 EDITION

(1) Chemical analysis only and mechanical properties for ASTM A182(M)

AISI 410 0

ASTM A276 2000A S41000 A,CF 0

0

ASME (1) SA182 2001 S41000 CLASS2 (M)  
EN 10088-3 95 1.4006 A,CF 0

0

Qualità: T.410

Qualitätsstufe

Marca: VAL1

Markenbezeichnung/Brand/Marken

Punzonatura:

Kontrollstempel/Markierung/Steuerstempel

| Pos. nr.<br>Part. Nr.<br>Item Nr.<br>Nr. de partie | Oggetto<br>Gegegenstand<br>Product Description<br>Descr. di prodotto | Dimensioni - mm<br>Abmessungen<br>Dimensions<br>Dimensions | Tolleranza<br>Toleranz<br>Allowance<br>Tolérance | Lunghezza - mm<br>Länge<br>Length<br>Longueur | Colata<br>Schmelze<br>Heat<br>Coutée | Pezzi<br>Stücke<br>Pieces<br>Pièces | Peso -<br>Gewicht<br>Weight<br>Poids | Lotto nr.<br>Losn.<br>Lot no.<br>Lote no. |
|----------------------------------------------------|----------------------------------------------------------------------|------------------------------------------------------------|--------------------------------------------------|-----------------------------------------------|--------------------------------------|-------------------------------------|--------------------------------------|-------------------------------------------|
| 0050                                               | Tondo                                                                | 18,000                                                     | H9-MIN                                           | 3900 / 4000                                   | 236784                               |                                     | 4811,0                               | 319601780                                 |

Sono state soddisfatte tutte le condizioni richieste

Die genannten Anforderungen sind erfüllt, Anlagen erfüllt  
The material has been furnished in accordance with the requirements  
Le matériel a été livré conforme aux exigences

| TEST                                                                     | Prova/Esame<br>Schweiß-Prüfung<br>Long. Weld Test, Charpy<br>Long. Weld Test, Charpy<br>Long. Weld Test, Charpy<br>Long. Weld Test, Charpy | °C         | Pos. Saggi<br>Proben<br>Lage | Snervamento<br>Zug<br>Yield Point<br>Lower Yield Point | Snervamento<br>Zug<br>Yield Point<br>Upper Yield Point | Resistenza<br>Zugfestigkeit<br>Tensile strength<br>Resistance à la traction | Allungamento<br>Bruchdehnung<br>Elongation<br>Allongement |     | Stirazione<br>Bruchdehnung<br>Resistance to tear<br>Rupture |    | Resilienza<br>Schlagvermögen<br>Impact Value<br>Resilience | Durezza<br>Härte<br>Hardness<br>Dureté |
|--------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|------------|------------------------------|--------------------------------------------------------|--------------------------------------------------------|-----------------------------------------------------------------------------|-----------------------------------------------------------|-----|-------------------------------------------------------------|----|------------------------------------------------------------|----------------------------------------|
|                                                                          |                                                                                                                                            |            | 1                            | Rp 0,2%                                                |                                                        | Rm                                                                          | A5                                                        | E2" | Z                                                           | RA | °C                                                         | HB                                     |
|                                                                          |                                                                                                                                            |            |                              | N/mm2                                                  |                                                        | N/mm2                                                                       | %                                                         | %   | %                                                           | %  |                                                            |                                        |
| Valori richiesti /<br>Anforderungen / Requirements /<br>Valeurs requises |                                                                                                                                            | min<br>max |                              | 380                                                    | -                                                      | 585<br>880                                                                  | -                                                         | 18  | -                                                           | 45 | -                                                          | 167<br>229                             |
| 10                                                                       | 20                                                                                                                                         | L          |                              | 820                                                    |                                                        | 895                                                                         | 20                                                        | 23  | 88                                                          | 88 |                                                            | 209                                    |

(1) Longitudinal Test, Charpy, Tensile, Yield Point, Tensile Strength

## Analisi chimica

Chemische Zusammensetzung / Chemical Analysis / Analyse chimique

| Colata:<br>Schmelze/Heat/<br>Coutée | 0,080 min<br>0,180 max | 1,00 | 1,00 | 11,50<br>13,50 | 0,50 | 0,040 | 0,030 | - | - | - | - | - | - | - | - |
|-------------------------------------|------------------------|------|------|----------------|------|-------|-------|---|---|---|---|---|---|---|---|
| 236784                              | C %                    | Si % | Mn % | Cr %           | Ni % | P %   | S %   |   |   |   |   |   |   |   |   |
|                                     | 0,141                  | 0,37 | 0,72 | 12,37          | 0,34 | 0,020 | 0,030 |   |   |   |   |   |   |   |   |

The Quality Management System is Certified acc. Pressure Equipment Directive (97/23/EC) Annex 1, 4.3 by TÜV and Lloyd's

17 GIU. 2004

DOUGLAS CHERO Spa

Quality Assurance .....

P.C. STEVANI VITTORIO

Ripr. ....

1 - MAR. 2004

Vicenza, 06/11/03  
Mec/VCO12

Il collaudatore di stabilimento / der Werkstoffverständiger / Works Inspector / L'agent d'usine

M. Rizzotto

Pagina: 1 di 1



FRANCE

UGINE

Tél: 04.79.89.30.30  
Fax: 04.79.89.30.51

F 73403 UGINE CEDEX

|                                                                                                     |              |                |                                                          |
|-----------------------------------------------------------------------------------------------------|--------------|----------------|----------------------------------------------------------|
| 4                                                                                                   | N.° No 86535 | 11             | N.° de commande UGINE - Werkbestellnummer - Order number |
| FUGE TEST                                                                                           |              | 01/01 8Z141100 |                                                          |
| 3                                                                                                   |              |                |                                                          |
| CERTIFICATO COLLAUDO DI ACCETTAZIONE B<br>CERTIFICAT DE RECEPTION 3.1.B<br>INSPECTION CERTIFICATE B |              |                |                                                          |
| EN 10204 / 3.1.B                                                                                    |              |                |                                                          |

Usine Productrice  
Hersteller  
Manufaktur

Produit  
Erzeugnis  
Produkt

IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE

Client et/ou destinataire - Benefiziar und/oder Empfänger - Purchaser and/or Consignee

TECNOMECCANICA SRL

N.° de commande client - Kundenbestellnummer - Purchaser order number

364

Nuance et spécifications techniques - Stalsorte und Prüfbedingungen - Quality and Specifications

IMA4006

410

AISI 410

UNS S41000

SPEC. SDA 09-DU-20/11/01 (SAUF MN)

Etat de livraison - Lieferzustand - As delivered (1)

TEMPRATO RINVENUTO

Traitement de Référence - Probestattenbehandlung - Treatment of test samples (1)

|                                                                                                                                                                                                        |  |                                   |                           |                                      |                             |                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------|---------------------------|--------------------------------------|-----------------------------|----------------------------|
| Identification du produit<br>Erzeugnis Bezeichnung-Product Identification<br>N.° de cde usine N.° de poste N.° de Coulée<br>Werkbestellnummer Post Nr Schmelz Nr<br>Works order number Item No Heat No |  | Nombre<br>Stückzahl<br>Pieces Nbr | Profil<br>Profil<br>Shape | Dimension<br>Ausmessung<br>Dimension | Longueur<br>Länge<br>Length | Masse<br>Gewicht<br>Weight |
| 15 17                                                                                                                                                                                                  |  | 18                                | 19                        | 20                                   | 21                          | 22                         |
| 8Z141 100 404019                                                                                                                                                                                       |  | 100                               | TONDO                     | 24,000                               |                             | 1057 KG                    |

|                                                                                |                                              |                                                                                   |                                                       |                                                                  |                                                                                      |                                                      |                                       |                         |                                                                                                           |                                        |                                       |    |    |
|--------------------------------------------------------------------------------|----------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------|--------------------------------------------------------------------------------------|------------------------------------------------------|---------------------------------------|-------------------------|-----------------------------------------------------------------------------------------------------------|----------------------------------------|---------------------------------------|----|----|
| 39 B<br>Valeurs<br>Test N.                                                     | Demande<br>Versuch<br>Anforderung<br>Test N. | Température de test<br>Prüftemperatur<br>Test Temperature<br>(3) 24<br>Min<br>Max | Traction - Zugversuch - Tensile test                  |                                                                  | Résistance<br>à la traction<br>Zugfestigkeit<br>Tensile strength<br>27<br>MPa<br>585 | Allongement<br>Bruchdehnung<br>Elongation<br>28<br>% | Dureté<br>Härte<br>Hardness<br>(4) 30 | Type<br>Form<br>Type 31 | Kerbschlagzähigkeit<br>Notch Toughness<br>Valeurs individuelles<br>Einzelwerte<br>Individual Values<br>35 | Moyenne<br>Mittelwert<br>Average<br>36 | Dureté<br>Härte<br>Hardness<br>(5) HB |    |    |
|                                                                                |                                              |                                                                                   | Limite d'élasticité<br>Streckgrenze<br>Yield Strength | 1 %<br>26 B<br>MPa                                               |                                                                                      |                                                      |                                       |                         |                                                                                                           |                                        |                                       |    |    |
|                                                                                |                                              |                                                                                   | 0,2 %<br>26 A<br>MPa                                  | 1 %<br>26 B<br>MPa                                               |                                                                                      |                                                      |                                       |                         |                                                                                                           |                                        |                                       |    |    |
|                                                                                |                                              |                                                                                   | 275                                                   |                                                                  |                                                                                      |                                                      |                                       |                         |                                                                                                           |                                        | 237                                   |    |    |
|                                                                                |                                              |                                                                                   | 604                                                   |                                                                  | 692 21 70                                                                            |                                                      |                                       |                         |                                                                                                           |                                        | 210                                   |    |    |
| 39 A<br>V. de Prélivraison<br>Probennummer<br>Test N.                          | Demande<br>Versuch<br>Anforderung<br>Test N. | Température de test<br>Prüftemperatur<br>Test Temperature<br>(3) 24<br>Min<br>Max | N.° de Coulée<br>Schmelz Nr<br>Heat No                | Analyse<br>Produit<br>Spezifikation<br>analyse<br>Check Analysis | 42                                                                                   | 43                                                   | 44                                    | 45                      | 46                                                                                                        | 47                                     | 48                                    | 49 | 50 |
|                                                                                |                                              |                                                                                   |                                                       |                                                                  | C                                                                                    | SI                                                   | MN                                    | NI                      | CR                                                                                                        | S                                      | P                                     |    |    |
|                                                                                |                                              |                                                                                   | 0,150                                                 | 0,60                                                             | 0,30                                                                                 |                                                      | 11,50                                 |                         | 0,030                                                                                                     | 0,040                                  |                                       |    |    |
|                                                                                |                                              |                                                                                   | 0,108                                                 | 0,45                                                             | 0,40                                                                                 | 0,36                                                 | 12,10                                 | 0,023                   | 0,018                                                                                                     |                                        |                                       |    |    |
|                                                                                |                                              |                                                                                   | 04019                                                 |                                                                  |                                                                                      |                                                      |                                       |                         |                                                                                                           |                                        |                                       |    |    |
| 38<br>Mode<br>de<br>élaboration<br>Herstell-<br>verfahren<br>Producing process | Demande<br>Versuch<br>Anforderung<br>Test N. | Température de test<br>Prüftemperatur<br>Test Temperature<br>(3) 24<br>Min<br>Max |                                                       |                                                                  |                                                                                      |                                                      |                                       |                         |                                                                                                           |                                        |                                       |    |    |
|                                                                                |                                              |                                                                                   |                                                       |                                                                  |                                                                                      |                                                      |                                       |                         |                                                                                                           |                                        |                                       |    |    |
| 38<br>Electric<br>Electric                                                     | Demande<br>Versuch<br>Anforderung<br>Test N. | Température de test<br>Prüftemperatur<br>Test Temperature<br>(3) 24<br>Min<br>Max |                                                       |                                                                  |                                                                                      |                                                      |                                       |                         |                                                                                                           |                                        |                                       |    |    |
|                                                                                |                                              |                                                                                   |                                                       |                                                                  |                                                                                      |                                                      |                                       |                         |                                                                                                           |                                        |                                       |    |    |

IMA 4006 BARRE TRAFILATE LUCIDE TEMPRATE

DOUGLAS CHERO Spa

Quality Assurance .....

P.C. STEFANO VITTORIO

Sign. ....

|                                                                          |                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                      |
|--------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| (3) L = Long<br>Laenge - Long<br>T = Travers<br>Quer-Transverse          | (1) TE = Trempe à l'eau - Wasserhaenen - Waterquench<br>TH = Trempe à l'huile - Ölhaenen - Oil Quench<br>A = Hypertempe - Lösungsgegluht - Solution annealed | R = Revenu - Anlassen - Tempered<br>RT = Recuit - Geglueht - Annealed<br>TRM = Recuit maxi - Weichgegluht - Max annealed                                                                                                                                                                                                                                                                                                                                                                              | Ugine, le 18-02-04<br>L'Agent Réceptionnaire de l'usine<br>Der Werksachverständige<br>The Work Inspector<br>H. Mayet |
| (4) A l'état de référence<br>Zum Bezug Zustand<br>At reference condition | (5) A l'état de livraison<br>In state of delivery                                                                                                            | Contrôles de marquage, d'aspect et de dimensions: sans réserves<br>Bezeichnung, Beschichtung und Ausmessung: ohne Beanstandung<br>Marking, inspection and measurement: without objection<br>Nous certifions que les produits énumérés ci-dessus sont conformes aux prescriptions de la commande<br>Wir bestätigen hiermit dass die obengenannten Erzeugnisse den Bestellvorgeschritten entsprechen<br>We certify hereby that the above mentioned products are consistent with the order prescriptions |                                                                                                                      |

|                                                                                                 |                                                                                    |                                                                                                                                                                                                                                                          |                                                                                    |                                                                                                                                  |                                                                                    |                                                                                    |
|-------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
|                |                                                                                    | <b>ULTRASONIC EXAMINATION REPORT</b>                                                                                                                                                                                                                     |                                                                                    | No.: 009A/05-UT<br>Sheet: 1/2                                                                                                    |                                                                                    |                                                                                    |
| <b>Customer</b><br>KLAUS UNION ARMATUREN INTERNATIONAL<br>for LURGI OEL GAS CHEMIE GMBH         |                                                                                    |                                                                                                                                                                                                                                                          | <b>Order</b> HH-02535<br>Lurgi P.O: 4567569-000/1.69690/136                        |                                                                                                                                  | <b>Our Ref.</b><br>04.0572                                                         |                                                                                    |
| <b>Object</b><br>TESTS CARRIED OUT ON RAW BODIES AND BONNETS                                    |                                                                                    |                                                                                                                                                                                                                                                          |                                                                                    |                                                                                                                                  | <b>Quantity</b><br>100%                                                            |                                                                                    |
| <b>Procedure No.</b><br>D.C. 125 Rev. 2                                                         |                                                                                    | <b>Customer Specifications</b><br>/                                                                                                                                                                                                                      |                                                                                    | <b>Items of Order</b><br>See sheet 2/2                                                                                           | <b>Material</b><br>ASTM A182/F22                                                   |                                                                                    |
| <b>Q.C.P.</b><br>PED-0003/05<br>Rev.2                                                           | <b>Stage</b><br>9                                                                  | <b>Drawing</b><br>DOUGLAS CHERO                                                                                                                                                                                                                          | <b>Items of Drawing</b><br>10 - 11                                                 | <b>Component Temperature °C</b><br>ROOM TEMP.                                                                                    |                                                                                    |                                                                                    |
| <b>Specifications</b><br>ASME V: ASME SA 388<br>ASME B16.34                                     |                                                                                    | <b>Surface conditions</b><br><input checked="" type="checkbox"/> Forged <input checked="" type="checkbox"/> Sandblasted <input type="checkbox"/> As rolled<br><input type="checkbox"/> Machined <input type="checkbox"/> Welded <input type="checkbox"/> |                                                                                    |                                                                                                                                  |                                                                                    |                                                                                    |
| <b>Instrument</b><br>Manufacturer SIRIO<br>Type RP 3000<br>Serial Nr. 9293                      |                                                                                    | <b>Control Technique</b><br><input checked="" type="checkbox"/> Impulse Echo<br><input checked="" type="checkbox"/> Contact                                                                                                                              |                                                                                    | <b>Material Conditions</b><br><input type="checkbox"/> Before PWHT<br><input type="checkbox"/> After PWHT                        |                                                                                    |                                                                                    |
| <b>Reference Standard</b><br><input checked="" type="checkbox"/> V1 <input type="checkbox"/> V2 |                                                                                    | <b>Calibration Block Nr.</b><br>/                                                                                                                                                                                                                        |                                                                                    | <b>Coupler</b><br><input type="checkbox"/> Water <input checked="" type="checkbox"/> Oil <input type="checkbox"/> Glycerin paste |                                                                                    |                                                                                    |
| <b>Transducers</b>                                                                              |                                                                                    |                                                                                                                                                                                                                                                          |                                                                                    |                                                                                                                                  |                                                                                    |                                                                                    |
| <b>Probes position</b>                                                                          | 1                                                                                  | 2                                                                                                                                                                                                                                                        | 3                                                                                  | 4                                                                                                                                | 5                                                                                  | 6                                                                                  |
| <b>Type of probe</b>                                                                            | SN 10-4M                                                                           |                                                                                                                                                                                                                                                          |                                                                                    |                                                                                                                                  |                                                                                    |                                                                                    |
| <b>Probe number</b>                                                                             | /                                                                                  |                                                                                                                                                                                                                                                          |                                                                                    |                                                                                                                                  |                                                                                    |                                                                                    |
| <b>Manufacturer</b>                                                                             | SIRIO                                                                              |                                                                                                                                                                                                                                                          |                                                                                    |                                                                                                                                  |                                                                                    |                                                                                    |
| <b>Dimension (mm)</b>                                                                           | 10                                                                                 |                                                                                                                                                                                                                                                          |                                                                                    |                                                                                                                                  |                                                                                    |                                                                                    |
| <b>Frequency (Mhz)</b>                                                                          | 4                                                                                  |                                                                                                                                                                                                                                                          |                                                                                    |                                                                                                                                  |                                                                                    |                                                                                    |
| <b>Decibel used</b>                                                                             | 56+68                                                                              |                                                                                                                                                                                                                                                          |                                                                                    |                                                                                                                                  |                                                                                    |                                                                                    |
| <b>Type of wave</b>                                                                             | <input checked="" type="checkbox"/> Longitudinal<br><input type="checkbox"/> Shear | <input checked="" type="checkbox"/> Longitudinal<br><input type="checkbox"/> Shear                                                                                                                                                                       | <input checked="" type="checkbox"/> Longitudinal<br><input type="checkbox"/> Shear | <input checked="" type="checkbox"/> Longitudinal<br><input type="checkbox"/> Shear                                               | <input checked="" type="checkbox"/> Longitudinal<br><input type="checkbox"/> Shear | <input checked="" type="checkbox"/> Longitudinal<br><input type="checkbox"/> Shear |
| <b>Methods</b>                                                                                  |                                                                                    | <b>Acceptance Criteria</b>                                                                                                                                                                                                                               |                                                                                    |                                                                                                                                  |                                                                                    |                                                                                    |
| <input checked="" type="checkbox"/> Back reflection                                             |                                                                                    | According to D.C. Procedure 125 Rev.0 (Longitudinal wave probe 10%)                                                                                                                                                                                      |                                                                                    |                                                                                                                                  |                                                                                    |                                                                                    |
| <input type="checkbox"/> D.A.C.                                                                 |                                                                                    | According to D.C. Procedure 125 Rev.0                                                                                                                                                                                                                    |                                                                                    |                                                                                                                                  |                                                                                    |                                                                                    |
| <input type="checkbox"/> A.V.G.                                                                 |                                                                                    | According to D.C. Procedure 125 Rev.0                                                                                                                                                                                                                    |                                                                                    |                                                                                                                                  |                                                                                    |                                                                                    |
| <b>Primary Reference Reflector</b>                                                              |                                                                                    | <b>(*) Reportable indications</b>                                                                                                                                                                                                                        |                                                                                    |                                                                                                                                  |                                                                                    |                                                                                    |
| Flat bottom hole <input type="checkbox"/>                                                       |                                                                                    | /                                                                                                                                                                                                                                                        |                                                                                    |                                                                                                                                  |                                                                                    |                                                                                    |
| Bottom wall <input checked="" type="checkbox"/>                                                 |                                                                                    |                                                                                                                                                                                                                                                          |                                                                                    |                                                                                                                                  |                                                                                    |                                                                                    |
| Notch type <input type="checkbox"/>                                                             |                                                                                    |                                                                                                                                                                                                                                                          |                                                                                    |                                                                                                                                  |                                                                                    |                                                                                    |
| <b>RESULTS</b>                                                                                  |                                                                                    |                                                                                                                                                                                                                                                          |                                                                                    |                                                                                                                                  |                                                                                    |                                                                                    |
| <input type="checkbox"/> Reportable indications (*)                                             |                                                                                    | <input checked="" type="checkbox"/> No reportable indications                                                                                                                                                                                            |                                                                                    | <input checked="" type="checkbox"/> Accepted                                                                                     |                                                                                    |                                                                                    |
|                                                                                                 |                                                                                    |                                                                                                                                                                                                                                                          |                                                                                    | <input type="checkbox"/> Non conforming                                                                                          |                                                                                    |                                                                                    |
|                                                                                                 |                                                                                    |                                                                                                                                                                                                                                                          |                                                                                    | <input type="checkbox"/> Rejected                                                                                                |                                                                                    |                                                                                    |
| <b>EXAMINATION PERFORMED BY</b>                                                                 |                                                                                    | <b>APPROVED BY</b>                                                                                                                                                                                                                                       |                                                                                    | <b>CUSTOMER INSPECTOR</b>                                                                                                        |                                                                                    |                                                                                    |
| DOUGLAS-CHERO S.p.A.<br>Quality Control<br>CREDALI STEFANO                                      |                                                                                    |                                                                                                                                                                                                                                                          |                                                                                    |                                                                                                                                  |                                                                                    |                                                                                    |
| <b>LEVEL:</b><br>II° SNT-TC-1A                                                                  |                                                                                    | <b>LEVEL:</b>                                                                                                                                                                                                                                            |                                                                                    | <b>DATE:</b><br>31/01/2005                                                                                                       |                                                                                    |                                                                                    |



# ULTRASONIC EXAMINATION REPORT

No.: 009A/05-UT

Sheet: 2/2

## LIST OF ITEMS

| ITEM | IDENT No.       | DESCRIPTION                                                                                       | SIZE | Q.TY | Q.TY<br>tested |
|------|-----------------|---------------------------------------------------------------------------------------------------|------|------|----------------|
| 260  | S491-BW<br>4,55 | GATE VALVE LANTERN RING long pattern c.1500 FB<br>BB BW Sch.80 -Seats+Wedge Stell. [ TRIM 5 ]     | 1"   | 9    | 9+9            |
| 270  | S490            | GATE VALVE LANTERN RING c.1500C FB BB NPT+2<br>Weld.Nipples Sch.80 -Seats+Wedge Stell. [ TRIM 5 ] | 3/4" | 13   | 13+13          |
| 310  | V481-BW<br>6,35 | GLOBE VALVE c.1500C RB BB BW Sch.160 -<br>Seat+Disk Stell.<br>[ TRIM 5 ]                          | 1"   | 4    | 4+4            |
|      |                 |                                                                                                   |      |      |                |

DOUGLAS-CHERO S.p.A.  
Quality Control  
CREDALI STEFANO



# MAGNETOSCOPIC INSPECTION CERTIFICATE

No.: 019A/05-MT

Sheet: 1/2

|                                                                                                  |                                             |                                                                  |                                              |                                |                                       |
|--------------------------------------------------------------------------------------------------|---------------------------------------------|------------------------------------------------------------------|----------------------------------------------|--------------------------------|---------------------------------------|
| Customer:<br>KLAUS UNION ARMATUREN INTERNATIONAL for<br>LURGI OEL GAS CHEMIE GMBH                |                                             | Order:<br>Lurgi P.O.: HH-02535<br>4567569-000 /<br>1.69690 / 136 |                                              | Job:<br>04.0572                |                                       |
| Object:<br>TEST CARRIED OUT ON WORKED BODY / BONNET<br>SEE ATTACHED SHEET FOR VALVES DESCRIPTION |                                             |                                                                  |                                              | Quantity:<br>100 %             |                                       |
| Procedure No.<br>212 Rev.2                                                                       | Customer Specification<br>ASME B16.34 PAR.8 | Item of Order<br>SEE SHEET 2/2<br>ATTACHED                       | Material<br>ASTM A182/F22                    | Q.C.P.<br>PED-0003/05<br>Rev.2 | Stage<br>9                            |
| Drawing:<br>DOUGLAS CHERO                                                                        | Item of Drawing:<br>10 - 11                 | Test Temperature:<br>ROOM TEMPERATURE                            | Surface Condition:<br>BLASTING - MACHINING   |                                |                                       |
| YOKE                                                                                             |                                             | ELECTRODS                                                        |                                              | COIL                           |                                       |
| Tr. Mark<br>SILVER YOKE                                                                          |                                             | Tr. Mark                                                         |                                              | Tr. Mark                       |                                       |
| Curr.Type<br>AC - DC                                                                             |                                             | Curr.Type                                                        |                                              | Curr.Type                      |                                       |
|                                                                                                  |                                             | Intensity                                                        |                                              | Diameter                       |                                       |
|                                                                                                  |                                             | Magn.Flux                                                        |                                              | Magn. Flux                     |                                       |
| Distance<br>100mm.                                                                               |                                             | Distance                                                         |                                              | Distance                       |                                       |
|                                                                                                  |                                             | FLUORESCENT WET                                                  |                                              | DRY                            |                                       |
|                                                                                                  |                                             | TYPE BATCH CERTIFIC.                                             |                                              | TYPE COLOUR CERTIFIC.          |                                       |
| TRADE MARK                                                                                       |                                             | MET-L-CHEK                                                       |                                              |                                |                                       |
| CLEANER                                                                                          |                                             | REMOVER NPU                                                      |                                              |                                |                                       |
| MAGN. PARTICLES                                                                                  |                                             | FW1 - NDT                                                        |                                              |                                |                                       |
| MAGN. POWDER                                                                                     |                                             | //                                                               |                                              |                                |                                       |
| DEMAGNETIZATION: NO                                                                              |                                             |                                                                  | <input checked="" type="checkbox"/> ACCEPTED |                                | <input type="checkbox"/> NOT ACCEPTED |
| REMARKS: ///                                                                                     |                                             |                                                                  |                                              |                                |                                       |
| EXAMINATION PERFORMED BY                                                                         |                                             | APPROVED BY                                                      |                                              | CUSTOMER INSPECTOR             |                                       |
| DOUGLAS-CHERO S.p.A.<br>Quality Control<br>CREDALI STEFANO                                       |                                             |                                                                  |                                              |                                |                                       |
| LEVEL:<br>II° SNT-TC-1A & EN 473                                                                 |                                             | LEVEL:                                                           |                                              | DATE:<br>2102/2005             |                                       |



# MAGNETOSCOPIC INSPECTION CERTIFICATE

No.: 019A/05-MT

Sheet: 2/2

## LIST OF ITEMS

| ITEM | IDENT NO.       | DESCRIPTION                                                                                          | SIZE | Q.TY | Q.TY<br>Tested |
|------|-----------------|------------------------------------------------------------------------------------------------------|------|------|----------------|
| 260  | S491-BW<br>4,55 | GATE VALVE LANTERN RING long pattern c.1500<br>FB BB BW Sch.80 -Seats+Wedge Stell. [ TRIM 5 ]        | 1"   | 9    | 9+9            |
| 270  | S490            | GATE VALVE LANTERN RING c.1500C FB BB<br>NPT+2 Weld.Nipples Sch.80 -Seats+Wedge Stell.<br>[ TRIM 5 ] | 3/4" | 13   | 13+13          |
| 310  | V481-BW<br>6,35 | GLOBE VALVE c.1500C RB BB BW Sch.160 -<br>Seat+Disk Stell.<br>[ TRIM 5 ]                             | 1"   | 4    | 4+4            |
|      |                 |                                                                                                      |      |      |                |

DOUGLAS-CHERO S.p.A.  
Quality Control  
CREDALIS STEFANO



Postfach 10 13 49  
D - 44713 Bochum  
Blumenfeldstr. 18  
D - 44795 Bochum

Telefon (0234) 4595 - 0  
Telefax (0234) 43 23 87

## Abnahmeprüfzeugnis DIN EN 10204 - 3.1B

Inspection certificate

Besteller: *Lurgi AG, D - 60295 Frankfurt*  
Customer:

Bestell-Nr.: *Lurgi Job - No.: 69690-10*  
Order no.: *Lurgi OGC PO.-No.: 4567569-002 to -003/1.69690/145*

Project Name: *2nd Zagros Methanol Plant - Iran*

Auftrag-Nr.: *HH - 02535 - 02*  
Job no.:

Lieferumfang / range:

| Pos   | Stck.<br>pcs. | Gegenstand<br>object                                   | DN | PN     | Werkstoff<br>material | Bemerkung<br>comment               |
|-------|---------------|--------------------------------------------------------|----|--------|-----------------------|------------------------------------|
| 00380 | 6             | <i>Globe valve<br/>RB BB SW<br/>Seat + disk stell.</i> | 1" | Cl.800 | ASTMA A105N           | <i>Valve Ident - No.: " V305 "</i> |

Auslegung + Prüfung nach *API 602 - BS EN ISO 15761, API 598 / BS EN 12266-1*  
Design and tests acc. To *ASME B16.34 - B16.25 - B16.11 - B1.20.1*

Sicht- und Funktionsprüfung: *o.k.*  
visual and functional test:

Festigkeits-/Dichtheitsprüfung: *Festigkeit / shell test = 211 bar Wasser / water (60 sec)*  
strength-/tightness-test: *Dichtheit Sitz / seat = 156 bar Wasser / water (60 sec)*  
*Rückdichtung / backseat = 156 bar Wasser / water (60 sec)*  
*Dichtheit Sitz / seat = 6 bar Luft / air (60 sec)*

Prüfungsergebnis: *ohne Beanstandung !*  
result: *no complaint !*

*W. A. Walter*  
Bochum, den 21.11.2005 - WG **KLAUS UNION** GmbH & Co. KG  
Werksachverständiger:  
Manufacturer's authorized inspector: Walter Glass



Anlage: *Dokumentation gemäß Material-Dokumentationsdeckblatt*  
enclosure *Documentation acc. to material cover sheet*



|                  |            |
|------------------|------------|
| Datum / Date     | 21.11.2005 |
| Seite / Page     | 1          |
| Sachbearbeiter   | W. Glass   |
| Person in charge |            |

Lurgji Job - No.: 69690-10  
Lurgji OGC PO,- No.: 4567569 - 002 to -003/ 1.69690 / 145

**Project Name:** 2nd Zagros Methanol Plant - Iran

[illegible]

25844

PAG. 1

**Evasi e Castelnovo s.r.l.**

Via Carlo Porta, 1 - 23861 CESANA BRIANZA (LC)

Tel. 031/65.59.36 - Fax 031/65.66.27

Cod. Fisc. e Part. IVA 00209790138

Reg.Soc. Trib. Lecco n. 5932 - C.C.I.A. 121373

Spett.

DOUGLAS CHERO SPA

LOC. PRADAGLIE

29013 CARPANETO PIACENTINO

PC

**CERTIFICATO DI COLLAUDO/INSPECTION CERTIFICATE  
UNI EN 10204 3.1 B****SISTEMA QUALITA' CERTIFICATO UNI EN ISO 9001/2000  
QUALITY SYSTEM CERTIFIED UNI EN ISO 9001/2000**

|                              |                   |
|------------------------------|-------------------|
| N.                           | DATA/DATE         |
| <b>000374</b>                | <b>19-10-2004</b> |
| D.D.T. / DELIVERY NOTE<br>N. | DATA/DATE         |

| COLATA / HEAT N. | MATERIALE/MATERIAL | ACCIAIERIA/STEEL PLANT | N.QUANTITY | DESCRIZIONE/DESCRIPTION |
|------------------|--------------------|------------------------|------------|-------------------------|
| 03/<br>70194     | A105.              | RIVA                   | 6.639      | CORPO 1 800 BB 4/9      |

**ANALISI CHIMICA / CHEMICAL ANALYSIS**

|       |       |       |       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C     | Mn    | Si    | P     | S     | Cr    | Ni    | Mo    | Ti    | V     | Cu    | Al    |
| 0,185 | 0,900 | 0,230 | 0,009 | 0,010 | 0,090 | 0,060 | 0,010 | 0,023 | 0,021 | 0,170 | 0,023 |
| Sn    | Nb    | N     | Fe    | W     | Ta    | Co    | Ca    | B     | Sb    |       | CE    |
| 0,008 |       |       |       |       |       |       |       |       |       |       |       |

**PROVE MECCANICHE/MECHANICAL TESTS**

| RS-YIELD<br>N./mm <sup>2</sup> | R-TENSILE<br>N./mm <sup>2</sup> | A%-ELONG | Z%-REDUCT |
|--------------------------------|---------------------------------|----------|-----------|
| 310,0                          | 500,0                           | 32,0     | 55,0      |

**IMPACT TEST - KV - J**

| TEST 1 | TEST 2 | TEST 3 | TEMP. °C |
|--------|--------|--------|----------|
|        |        |        |          |

25 OCT. 2004

| TRADE<br>MARK | HEAT<br>CODE | MATERIAL<br>CODE | MATERIAL<br>TYPE NR. | DWG |
|---------------|--------------|------------------|----------------------|-----|
| E.YD          |              |                  |                      |     |

**DOUGLAS CHERO Spa**

Quality Assurance .....

P.C. STEFANO VITTORIO

Sign. ....

**TRATTAMENTO TERMICO / HEAT TREATMENT**

| DESCRIPTION     | HEATING °C | STAY TIME | COOLING    | HARDNESS |
|-----------------|------------|-----------|------------|----------|
| NORMALIZZAZIONE | 900        | 2,3       | ARIA CALMA |          |

- 1) The result of chemical analysis is a true and correct copy of the mill certificate issued by the manufacturer of the steel employed, or by the laboratory which has determined it.  
Il risultato delle analisi chimiche è la corretta trascrizione del certificato di colata emesso dall'acciaieria o del laboratorio che li ha rilevati
- 2) Visual and dimensional control satisfactory.  
Controlli visivi e dimensionali soddisfacenti.
- 3) Results of test effected are in conformance with order's specifications.  
I risultati delle prove eseguite sono conformi alle specifiche richieste.
- 4) We confirm that materials used for the manufacture of supplied products are in conformance with the Directive 97/23/CE (PED); in particular with annex 1 par. 4 "Materials".  
Confermiamo che i materiali usati per lo stampaggio dei prodotti forniti sono conformi alla Direttiva 97/93/CE (PED) e particolarmente all'allegato I paragrafo 4 "Materiali".

APPROVATO/APPROVED

COLLAUDATORE/INSPECTOR

EMESSO/ISSUED

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |                                                                                                                                                                                                                                 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                                                                                 |  |                                            |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------|--|
| N. Nr N°<br>8 22211000020<br>4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | N° de commande usine - Werksbestellnummer - Works order number<br>3AP91000<br>0513AP9100<br>11                                                                                                                                  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                                                                                 |  |                                            |  |
| CERTIFICATO COLLAUDO DI ACCETTAZIONE 3.1.B<br>CERTIFICAT DE RECEPTION 3.1.B<br>INSPECTION CERTIFICATE 3.1.B<br>EN 10204 / 3.1.B<br>Page 1/ 2                                                                                                                                                                                                                                                                                                                                                                                                   |  |                                                                                                                                                                                                                                 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                                                                                 |  |                                            |  |
| d'UGINE<br>Certification - Werkzeugnis - Certificate<br>AD 2000-MERKBLATT W0/TRD100<br>Pressure Equipment Directive 97/23/EC<br>EN ISO 9001 : 2000<br>ISO/TS 16949 : 2002<br>EN ISO TS 14001 : 1996                                                                                                                                                                                                                                                                                                                                            |  | par von by<br><br>Marque d'usine - Herstellerzeichen - Supplier's Mark<br>UGINE<br>Poinçon de l'expert - Prüfstempel - Inspector's stamp<br>IQ |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                                                                                 |  |                                            |  |
| Produit - Erzeugnisform - Product<br>UGIMA 4006 BARRA LAMINATO DECALAMINATO BONIFICATO CLASSE 2 K13 TONDA 32,000MM LONG.<br>5,300M +300,000MM -300,000MM (IT)<br>UGIMA 4006 BARRE LAMINÉ(E) DÉCALAMINÉ(E) TRAITÉ(E) CLASSE 2 K13 RONDE(E) 32,000MM LONG. 5,300M +300,000MM -300,000MM (FR)<br>UGIMA 4006 BAR ROLLED DESCALED HEAT TREATED CLASSE 2 K13 ROUND 32,000MM LONG. 5,300M +300,000MM -300,000MM (EN)<br>UGIMA 4006 STAB GEWALZT ENTZUNDERT/ÜBERDREHT VERGÜTET CLASSE 2 K13 RUND 32,000MM LONG. 5,300M +300,000MM -300,000MM (DE)<br>6 |  |                                                                                                                                                                                                                                 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                                                                                 |  |                                            |  |
| Client et/ou destinataire - Besteller und/oder Empfänger - Purchaser and/or Consigner<br>19004 O.M.I.C S.N.C.<br>9                                                                                                                                                                                                                                                                                                                                                                                                                             |  | N° de commande client - Kundenbestellnummer - Purchaser order number<br>000093/A5<br>10                                                                                                                                         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                                                                                 |  |                                            |  |
| Marque commerciale - Handelsmarke - Trade name<br>UGIMA 4006<br>12                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                                                                                                                                                                                                                 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                                                                                 |  |                                            |  |
| Norme de référence - Bezugsnorm - Standard for reference<br>AISI 410 ; ASTM A182-05 F6A ;<br>12                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |                                                                                                                                                                                                                                 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                                                                                 |  |                                            |  |
| Spécifications client - Kundenspezifikation - Customer's specification<br>12                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  | DOUGLAS CHEBO Spa<br>Quality Assurance .....<br>R.C. STEFANO VITTORIO<br>Sign .....<br>12                                                                                                                                       |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                                                                                 |  |                                            |  |
| Etat de livraison - Lieferzustand - As delivered<br>TREMPE ET REVENU<br>13                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  | (1) Traitement de référence - Probestreifenbehandlung - Treatment on test sample<br>14                                                                                                                                          |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                                                                                 |  |                                            |  |
| Identification du produit<br>Erzeugnis Benennung<br>Product Identification<br>N° de cde usine<br>Werksbestellnummer<br>Works order number<br>15<br>3AP91<br>N° poste<br>Post Nr<br>Item Nr<br>17<br>000                                                                                                                                                                                                                                                                                                                                        |  | N° de coulée - Schmelzen Nr - Heat No<br>511007<br>16                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                                                                                 |  |                                            |  |
| Nombre<br>Stueckzahl<br>Pieces Nbr<br>18<br>29                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | Profil<br>Profile<br>Shape<br>19<br>RO                                                                                                                                                                                          |  | Dimension<br>Ausmessung<br>Dimension<br>21<br>32,000 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  | Longueur<br>Laenge<br>Length<br>21<br>5,300 m                                                                                   |  | Poids<br>Gewicht<br>Weigh<br>22<br>1008 kg |  |
| (3) L = Long<br>Laengs - Long<br>T = Travers<br>Quer - Transverse<br>58                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  | (1) TE = Trempé à l'eau-Wasserhaerten-Waterquench<br>TH = Trempé à l'huile-Ölhaeren-Oil Quench<br>A = Hypertrempé-Loesungsgeglueht-Solution annealed<br>RO = Rond-Rund-Round QR = Carré-Viereckig-Square                        |  | R = Revenu-Anlassen-Tempered<br>RT = Recuit-Geglueht-Annealed<br>TRM = Recuit maxi-Weichgeglueht-Maxi annealed<br>HX = Hexagonal-Sechskant-Hexagonal                                                                                                                                                                                                                                                                                                                                                                   |  | Ugine, le 03.06.2005<br>L'agent Réceptionnaire de l'usine<br>Der Werkssachverständige<br>The work inspector<br>C. BIOTEAU<br>63 |  |                                            |  |
| (4) A l'état de référence<br>Zum Bezug Zustand<br>At reference condition<br>59A                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  | (5) A l'état de livraison<br>In Lieferzustand<br>In state of delivery<br>59B                                                                                                                                                    |  | Contrôles de marquage, d'aspect et de dimensions : satisfaisants<br>Bezeichnung, Besichtigung und Ausmessung : ohne Beanstandung<br>Marking, inspection and measurement : without objection<br>62<br>Nous certifions que les produits énumérés ci-dessus sont conformes aux prescriptions de la commande<br>Wir bestätigen hiermit dass die obengenannten Erzeugnisse den Bestimmungsvorschriften entsprechen<br>We certify hereby that the above mentioned products are consistent with the order prescriptions<br>66 |  |                                                                                                                                 |  |                                            |  |

|             |                                                                |            |
|-------------|----------------------------------------------------------------|------------|
| N. Nr N°    | N° de commande usine - Werksbestellnummer - Works order number | 0513AP9100 |
| 82211000020 | 3AP91000                                                       | 11         |

**CERTIFICATO COLLAUDO DI ACCETTAZIONE 3.1.B**  
**CERTIFICAT DE RECEPTION 3.1.B**  
**INSPECTION CERTIFICATE 3.1.B**

EN 10204 / 3.1.B

Page 2/ 2

| Numéro de<br>prélèvement<br>Probenummer<br>Test Number         | Demande-Vorschritt-Required<br>Sens<br>Richtung<br>Direction<br>(3) | Température d'essai<br>Prüftemperatur<br>Test Temperature | Traction-Zugversuch-Tensile test                      |                   |                                                         |                                           |                                        |                             | Résilience-Kerbschlagzähigkeit-Notch Toughness |                      |                                      |                                                           |                                                           |                                   |
|----------------------------------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------|-------------------------------------------------------|-------------------|---------------------------------------------------------|-------------------------------------------|----------------------------------------|-----------------------------|------------------------------------------------|----------------------|--------------------------------------|-----------------------------------------------------------|-----------------------------------------------------------|-----------------------------------|
|                                                                |                                                                     |                                                           | Limite d'élasticité<br>Streckgrenze<br>Yield Strength |                   | Résistance<br>à la traction<br>Zugfestigkeit<br>Tensile | Allongement<br>Bruchdehnung<br>Elongation | Sidclon<br>Einschnürung<br>Red of Area | Dureté<br>Härte<br>Hardness | Dureté<br>Härte<br>Hardness                    | Type<br>Form<br>Type | Sens<br>Richtung<br>Direction<br>(3) | Température d'essai<br>Prüftemperatur<br>Test Temperature | Valeurs individuelles<br>Einzelwerte<br>Individual Values | Moyenne<br>Mittelwerte<br>Average |
|                                                                |                                                                     |                                                           | 0.2%                                                  | 1%                |                                                         |                                           |                                        |                             |                                                |                      |                                      |                                                           |                                                           |                                   |
| 39B                                                            | 24                                                                  | 25<br>°C<br>20                                            | 26A<br>MPa<br>380                                     | 26B<br>MPa<br>585 | 27<br>MPa<br>585                                        | 28<br>%<br>18                             | 29<br>%<br>35                          | 30<br>HB<br>167<br>229      | 37<br>HRC                                      | 31<br>ISOV           | 32<br>L                              | 33<br>°C<br>20                                            | 35<br>J                                                   | 36<br>J                           |
|                                                                | L<br>Min<br>Max                                                     |                                                           |                                                       |                   |                                                         |                                           |                                        |                             |                                                |                      |                                      |                                                           |                                                           |                                   |
|                                                                | (5)                                                                 |                                                           | 544                                                   | 689               | 24                                                      | 70                                        | 205                                    |                             |                                                |                      |                                      |                                                           |                                                           |                                   |
|                                                                | (4)                                                                 |                                                           |                                                       |                   |                                                         |                                           |                                        |                             |                                                |                      |                                      |                                                           |                                                           |                                   |
| 39A                                                            | 40                                                                  |                                                           | 42<br>% C                                             | 43<br>% Si        | 44<br>% Mn                                              | 45<br>% Ni                                | 46<br>% Cr                             | 47<br>% S                   | 48<br>% P                                      | 49                   | 50                                   |                                                           |                                                           |                                   |
| Numéro de<br>prélèvement<br>Probenummer<br>Test Number         | Demande<br>Vorschritt<br>Required                                   | Min<br>Max                                                | 0,1500                                                | 1,0000            | 1,0000                                                  | 0,5000                                    | 11,5000<br>13,5000                     | 0,0300                      | 0,0400                                         |                      |                                      |                                                           |                                                           |                                   |
| Numéro de coulée<br>Schmelz Nr<br>Heat N.<br>511007            |                                                                     |                                                           | 0,1140                                                | 0,4400            | 0,3800                                                  | 0,3400                                    | 12,1000                                | 0,0240                      | 0,0200                                         |                      |                                      |                                                           |                                                           |                                   |
| 38                                                             |                                                                     | 51<br>b                                                   | 52<br>% B                                             | 53                | 54                                                      | 55                                        | 70                                     | 71                          | 72                                             | 73                   | 74                                   |                                                           |                                                           |                                   |
| Mode d'élaboration<br>Herstellungsverfahren<br>Melting process | Demande<br>Vorschritt<br>Required                                   | Min<br>Max                                                |                                                       |                   |                                                         |                                           |                                        |                             |                                                |                      |                                      |                                                           |                                                           |                                   |
| Electrique<br>Elektrisch<br>Electric                           |                                                                     |                                                           | 040                                                   | 0,0001            |                                                         |                                           |                                        |                             |                                                |                      |                                      |                                                           |                                                           |                                   |

**DOUGLAS CHERO Spa**

Quality Assurance .....

P.C. STEFANI VITTORIO

.....

56

|                                                                   |                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                         |
|-------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| (3) L = Long<br>Laengs - Long<br>T = Travers<br>Quer - Transverse | (1) TE = Trempé à l'eau-Wasserhaerten-Waterquench<br>TH = Trempé à l'huile-Ölhaften-Oil Quench<br>A = Hypertrempé-Loesungsgeglueht-Solution annealed<br>RO = Rond-Rund-Round QR = Carré-Viereckig-Square | R = Revenu-Anlassen-Tempered<br>RT = Recuit-Gegluht-Annealed<br>TRM = Recuit maxi-Weichgeglueht-Maxi annealed<br>HX = Hexagonal-Sechskant-Hexagonal                                                                                                                                                                                                                                                                                                                                                            | Ugine, le 03.06.2005<br><br>L'agent Réceptionnaire de l'usine<br>Der Werkssachverständige<br>The work inspector<br><br><i>Bioteau</i><br><br>C. BIOTEAU |
| 58                                                                | (5) A l'état de livraison<br>In Lieferzustand<br>In state of delivery                                                                                                                                    | Contrôles de marquage, d'aspect et de dimensions : satisfaisants<br>Bezeichnung, Besichtigung und Ausmessung : ohne Beanstandung<br>Marking, inspection and measurement : without objection<br><br>Nous certifions que les produits énumérés ci-dessus sont conformes aux prescriptions de la commande<br>Wir bestätigen hiermit dass die obengenannten Erzeugnisse den Bestellungsvorschriften entsprechen<br>We certify hereby that the above mentioned products are consistent with the order prescriptions | 7<br>62<br>66<br>63                                                                                                                                     |
| 59A                                                               | 59B                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                         |

# MECCANICHE MORANDI s.r.l.



VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.949 • Fax 0331.302.948  
E-mail: meccmorandi@libero.it Codice Fiscale e Partita IVA 01779110129

CERTIFICATO DI COLLAUDO  
Inspection certificate

28235

N°6326/DCH DATE-19.07.05

CLIENTE- DOUGLAS CHERO Spa  
Customer

ORDINE-195  
Order

BOLLA CONSEGNA N-2660  
Delivery note

## DESCRIZIONE DEL MATERIALE

## MATERIAL DESCRIPTION

| Item | Quantity | Article             | Material                | Heat n.   |
|------|----------|---------------------|-------------------------|-----------|
| 1    | 20000    | VITI TE M 12 X 30,5 | B7<br>ASTM A 193/A 193M | E01041362 |

## ANALISI CHIMICA

## CHEMICAL ANALYSIS

| %         | C         | Mn   | Si   | Cr   | Mo   | S     | P     |
|-----------|-----------|------|------|------|------|-------|-------|
| REQUIRED  | min. 0.37 | 0.65 | 0.15 | 0.75 | 0.15 |       |       |
| VALUE     | max. 0.49 | 1.10 | 0.35 | 1.20 | 0.25 | 0.040 | 0.035 |
| HEAT n.   | 0,44      | 0,81 | 0,15 | 1,10 | 0,22 | 0,025 | 0,005 |
| E01041362 |           |      |      |      |      |       |       |

## CARATTERISTICHE MECCANICHE

## MECHANICAL REQUIREMENTS

| REQUIRED        | Rm.<br>min.<br>860 MPa | Rp.(0,2)<br>min.<br>720 MPa | A4<br>min.<br>16% | Z.<br>min.<br>50% | Hardness<br>max<br>35 HRC |
|-----------------|------------------------|-----------------------------|-------------------|-------------------|---------------------------|
| ACTUAL<br>VALUE | 983                    | 895                         | 17,8              | 54,3              | 31                        |

## HEAT TREATMENT

Quenched at : 860 °C in oil  
Tempering : 2 hours at 593 °C min.

Visual and dimensional test = SATISFACTORY

This certificate has been tested in according with the specification included in your order.

25 LUG. 2005

DOUGLAS CHERO Spa

Quality Assurance .....

P.C. STEVANI VITTORIO

Sign .....

CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

QUALITY CONTROL

MECCANICHE MORANDI srl  
Via Magenta n. 27  
21015 LONATE POZZOLO (VA)

# Bonomi s.r.l

STAMPAGGIO A CALDO DELL'ACCIAIO



CERTIFICATO N°143467

23861 CESANA BRIANZA (LC)  
Via Carlo Porta, 8

☎ 031/656798 ☎ 031/657597

Partita I.V.A. 02418370132  
R.I. Lecco N. 15934 R.E.A. Lecco N. 288235

25683

TEST CERTIFICATE N° 040687

CERTIFICATO DI COLLAUDO

3.1B-AS-TO- SECONDO

UNI EN 10204

DATA : 07/10/2004

Spett.le Ditta

DOUGLAS CHERO Spa

Loc. Pradaglie

29013 CARPANETO P.NO (Pc)

Mod. 28/1

|                                                         |                       |                                     |                                                             |                                            |                            |                              |                   |      |      |      |       |
|---------------------------------------------------------|-----------------------|-------------------------------------|-------------------------------------------------------------|--------------------------------------------|----------------------------|------------------------------|-------------------|------|------|------|-------|
| CUSTOMER ORDER - ORDINE CLIENTE                         |                       | P.O.                                | DOCUMENTO DI TRASPORTO                                      | INVOICE-FATTURA                            |                            |                              |                   |      |      |      |       |
| 240741 pos. 1                                           |                       |                                     | 251 del 07/10/2004                                          |                                            |                            |                              |                   |      |      |      |       |
| DESCRIPTION OF PARTICULAR - DESCRIZIONE DEL PARTICOLARE |                       |                                     | TYPE AND MATERIAL SPECIFICATIONS-TIPO E SPECIFICA MATERIALE |                                            |                            |                              |                   |      |      |      |       |
| BONNET                                                  |                       |                                     | ASTM A105N                                                  |                                            |                            |                              |                   |      |      |      |       |
| NUMERO COLATA<br>HEAT NUMBER                            |                       | CHEMICAL ANALYSIS - ANALISI CHIMICA |                                                             |                                            |                            |                              |                   |      |      |      |       |
| 04/79481                                                |                       | C                                   | Mn                                                          | Si                                         | P                          | S                            | Cr                | Ni   | Mo   | Cu   | Sn    |
|                                                         |                       | 0.185                               | 0.80                                                        | 0.22                                       | 0.021                      | 0.020                        | 0.12              | 0.06 | 0.01 | 0.22 | 0.008 |
| TELL. MILL.<br>ACCIAIERIA                               |                       | Al                                  | Ti                                                          | V                                          | Nb                         | B                            | C.E.              |      |      |      |       |
| RIVA                                                    |                       | 0.005                               | 0.007                                                       | 0.003                                      | 0.001                      | 0.000                        | 0.36              |      |      |      |       |
| ST.M. CERT. N.<br>CERT. ACC. N.                         |                       | 29058                               |                                                             |                                            |                            |                              |                   |      |      |      |       |
| HEAT CODE ON FORGING<br>CODICE COLATA                   | DISEGNO DEL FORGIATO. | QUANTITY<br>QUANTITA'               | MECHANICAL PROPERTIES - CARATTERISTICHE MECCANICHE          |                                            |                            |                              |                   |      |      |      |       |
| BBA                                                     | 4/8                   | 11.954                              | YIELD<br>STRENGTH<br>P.S.I.<br>SNERMAM.<br>N/mm2            | TENS.<br>STRENGTH<br>P.S.I.<br>ROTT. N/mm2 | ELONG<br>2" 50<br>ALLUNG % | RED OF<br>AREA<br>% CONTRAZ. | H.B.              |      |      |      |       |
|                                                         |                       |                                     | 313                                                         | 505                                        | 32,40                      | 54,84                        | 154<br>151<br>151 |      |      |      |       |
|                                                         |                       |                                     | 15 OTT. 2004                                                |                                            |                            |                              |                   |      |      |      |       |
| HEAT TREATMENT - TRATTAMENTO TERMICO                    |                       |                                     | DOUGLAS CHERO Spa                                           |                                            |                            |                              |                   |      |      |      |       |
| Normalizing                                             |                       |                                     | Quality Assurance .....<br>P.C. STEFANO VITTORIO<br>Sign    |                                            |                            |                              |                   |      |      |      |       |

## REMARKS

- 1) The result of chemical analysis is a true and correct copy of the mill certificate issued, by the manufacturer of the steel employed, or by the laboratory which has determined it.  
\* I risultati delle analisi chimiche è la corretta trascrizione del certificato di colata emesso dall'acciaieria o dal laboratorio che li ha rilevati.
- 2) The material or components shipped under the above order number did not come in direct contact with mercury or any of its components; or with any mercury containing devices employing a single boundary of containment, during the manufacturing process inspection or storage.  
\*\* Il materiale o i particolari spediti per questi ordini non sono mai venuti a contatto diretto con mercurio o con elementi contenenti mercurio durante la fase di lavorazione, controllo o immagazzinamento.

I certify these tests to be correct as  
contained in the records of the company  
certifico che tutti i dati sono corretti  
e uguali a quelli registrati presso Bonomi

Q.A. OFFICE  
UFFICIO QUALITA'

Bucca Rosaiba



36100 VICENZA (Italia) - Viale della scienza, 25 z.l.

Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

Clienti / Besteller/Purchaser/Client  
TECNOMECCANICA SRL  
VIA Creta 8  
25033-COLOGNE (BS)-BS

Produttore: STABILIMENTO DI BOLZANO  
Hersteller/Item/Usine productrice

Avviso di Spedizione: A-BS04002304  
Lieferanzeige/Packing list/B.L.

Ordine nr: 468  
Bestell/Your order/Commande

Certificato nr: MEST161056/2004/  
Prüfung/Test/Essai

Conferma ordine nr: BS04002055  
Werks/Our Order/Ref. nr.

Marchio di Fabbrica:  
Zeichen des Werks/Mark  
Sigle de l'usine productrice



Oggetto Prove: - Ricotto lavorabile Trafilato  
Prüfgegenstand/Item inspected/Finissage

Tipo di Elaborazione: E+AOD  
Erschmelzungsart/Melting process/Mode d'elaboration

Punzone del Collaudatore:  
Stempel des Werksachverständigen  
Inspector's stamp/Pointon de l'essayeur

Specifiche:  
Anforderungen / Requirements / Exigences  
ASTM A182 2002 S41000 CLASS2 (a)  
(\*) Chemical analysis only and mecc. properties (for ASTM A182[M])

Qualità: S41000  
Werkstoff/Grade/Nuance

Marca: VAL1  
Markenbezeichnung/Brand/Nuance

Punzonatura:  
Kennzeichnung/Marking/Marque

| Pos. nr.<br>Pos. nr.<br>Nr. do poste | Oggetto<br>Gegenstand<br>Product description<br>Descrip. du produit | Dimensioni - mm<br>Abmessungen<br>Dimension<br>Dimension | Tolleranza<br>Toleranz<br>Allowance<br>Tolerance | Lunghezza - mm<br>Länge<br>Length<br>Longueur | Colata<br>Schmelze<br>Heat<br>Coulée | Pezzi<br>Stückzahl<br>Pieces<br>Pièces | Peso - KG<br>Gewicht<br>Weight<br>Poids | Lotto nr.<br>Losnr.<br>Lot nr.<br>Lot nr. |
|--------------------------------------|---------------------------------------------------------------------|----------------------------------------------------------|--------------------------------------------------|-----------------------------------------------|--------------------------------------|----------------------------------------|-----------------------------------------|-------------------------------------------|
| 0040                                 | Tondo                                                               | 14,000                                                   | H9-MIN                                           | 4190 / 4240                                   | 415175                               |                                        | 1829,0                                  | 423601390                                 |

Sono state soddisfatte tutte le condizioni richieste  
Die gestellten Anforderungen sind ii. Anlage erfüllt  
The material has been furnished in accordance with the requirements  
Le matériel a été livré conforme aux exigences

| TEST                                                                     | Provetta/Probes<br>Specimen/Eprouvette<br>Läng. diam. Spitz.<br>Brake Diam. Dicks.<br>Wachs Diam. Thickness<br>Läng. diam. épais.<br>mm | ° C        | Posiz.<br>Saggio<br>Prove<br>Essai<br>Position | Snervamento<br>Streckgrenze<br>Yield Stress<br>Limite élastique<br>Rp 0,2%<br>N/mm2 | Snervamento<br>Streckgrenze<br>Yield Stress<br>Limite élastique | Resistenza<br>Zugfestigkeit<br>Tensile strength<br>Résistance à traction<br>Rm<br>N/mm2 | Allungamento<br>Bruchdehnung<br>Elongation<br>Allongement<br>E 4d<br>% | Strizione<br>Erweichung<br>Reduction of area<br>Striction<br>RA<br>% | Resilienza<br>Kerbschlagarbeit<br>Impact Value<br>Resilience | Durezza<br>Härte<br>Hardness<br>Dureté<br>HB |
|--------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|------------|------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------|----------------------------------------------------------------------|--------------------------------------------------------------|----------------------------------------------|
| Valori richiesti 1<br>Anforderungen/Required values<br>Valeurs demandées |                                                                                                                                         | min<br>max |                                                | 380                                                                                 | -                                                               | 585                                                                                     | - 18                                                                   | - 35                                                                 | -                                                            | 167<br>229                                   |
| A                                                                        | 8.75                                                                                                                                    | 20         | L                                              | 600                                                                                 |                                                                 | 694                                                                                     | 21                                                                     | 68                                                                   |                                                              | 210                                          |

1) L=longitudinale/längs, C=transversale/quer, T=Tangenziale/tangentiel

### Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata Heat<br>Schmelze/Coulée | min -<br>max 0,15 | 1,00 | 1,00 | 11,50<br>13,50 | 0,50 | 0,040 | 0,030 | - | - | - | - | - | - | - | - |
|--------------------------------|-------------------|------|------|----------------|------|-------|-------|---|---|---|---|---|---|---|---|
|                                | C %               | Si % | Mn % | Cr %           | Ni % | P %   | S %   |   |   |   |   |   |   |   |   |
| 415175                         | 0,15              | 0,38 | 0,72 | 12,15          | 0,16 | 0,021 | 0,023 |   |   |   |   |   |   |   |   |

Made in Italy No welding or weld repair Material free from Mercury or radio-activity contamination  
The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1, s. 4.3 by TÜV and LLOYD'S

**DOUGLAS CHERO Spa**

Quality Assurance .....

P.C. STEVANI VITTORIO

Sign. ....

Bolzano, 22/11/04  
Mod./BSL006

Il collaudatore di stabilimento / der Werksachverständige / Works inspector / L'agent d'usine

R. Cristofari

Pagina - 1 di 1

Siège Social : Ugitech S.A.  
Avenue Paul Girod  
73400 UGINE, FRANCE  
DENT. TVA : FR 89 410 436 158

|                                                                                                                                                                               |                        |                                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|----------------------------------------------|
| Bolla/N° BL/DL N°/Lief.                                                                                                                                                       | N° Certificat./Pruf N° | Produttore/Usine produc./Manufact./Herstell. |
| 325757                                                                                                                                                                        | 77015                  | F00002                                       |
| <b>RELEVÉ DE CONTRÔLE (1)</b><br>SELON EN 10204 PARAGRAPHE 4<br>Texte certificat de conformité<br>Texte certificat de conformité<br>Texte type cert. conformité éditée - fctc |                        |                                              |

|                                                                                                                                  |                                                                         |                                                                                    |
|----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Prodotto Erzeugnisform<br>Produit Product                                                                                        | BARRE RONDE IMA 4006-410<br>24,0 K13                                    | LAMINE DECALAM. RECUIT                                                             |
| Cliente e/o destinatario - Client et/ou destinataire - Besteller und/oder Empfänger<br>Purchaser and/or Consignee                | N° ordine cliente - Votre référence - Ihre Aufstrag Nr - Your reference |                                                                                    |
| UGINE-SAVOIE ITALIA SRL                                                                                                          | VEGIS 403082735 MI T LIMETTI                                            |                                                                                    |
| Qualità e specifiche tecniche - Nuance et spécifications techniques - Stalsorte und Prüfbedingungen - Quality and Specifications |                                                                         |                                                                                    |
| IMA 4006-410 K13 X12CR13/NFEN 10088-3 /1.4006 - AISI410/ASTM A182/F6A CLASS 2                                                    |                                                                         |                                                                                    |
| Stato di fornitura - Etat de livraison - Lieferzustand - As delivered (1)                                                        |                                                                         | Stato metallurgico - Etat métallurgique - Heat treatment condition - Lieferzustand |
| LAMINE DECALAM.                                                                                                                  |                                                                         | RECUIT                                                                             |
| N° Conferma d'ordine<br>Accusé de réception<br>Auftragsbest N°<br>Acknowledgment N°                                              | Posizione<br>N° Poste<br>Post Nr<br>Item N°                             | N° lotto interno<br>N° de lot interne<br>Interne los-Nr<br>Internal batch N°       |
| 403667063 1                                                                                                                      |                                                                         | 4479243                                                                            |
| Profilo<br>Profil<br>Profile<br>Shape                                                                                            |                                                                         | Dimensione<br>Dimension<br>Abmessung<br>Size                                       |
| BARRE RONDE                                                                                                                      |                                                                         | 24,0000                                                                            |
| Tolleranza<br>Tolérance<br>Toleranz<br>Tolerance                                                                                 |                                                                         | Peso netto<br>Masse<br>Gewicht<br>Weight                                           |
| K13                                                                                                                              |                                                                         | 92,000                                                                             |

| Fornitore<br>producteur<br>Hersteller | N° Colata<br>N° de coulée<br>Schmelz Nr<br>Heat N° | Trazione - Traction - Zugversuch - Tensile test                              |                                                                             |                                                     |                                                                                   | Resilienza - Résilience - Kerbschlagzähigkeit - Notch Toughness |                                                                                   |                                                                     |       | Media<br>Moyenne<br>Mittelwerte<br>Average | Durezza<br>Dureté<br>Haerte<br>Hardness |
|---------------------------------------|----------------------------------------------------|------------------------------------------------------------------------------|-----------------------------------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------|-------|--------------------------------------------|-----------------------------------------|
|                                       |                                                    | Lim. di snervamento<br>Limite d'Elasticité<br>Streckgrenze<br>Yield Strength | Carico di rottura<br>Résistance tract.<br>Zugfestigkeit<br>Tensile strength | Alungamento<br>allongement<br>Dehnung<br>Elongation | Resistenza a impatto<br>Résistance à l'impact<br>Zugfestigkeit<br>Impact strength | Forma<br>Type<br>Form<br>Type                                   | Temperatura di prova<br>Température d'essai<br>Prüftemperatur<br>Test Temperature | Valori<br>Valeurs individuelles<br>Einzelwerte<br>Individual values |       |                                            |                                         |
|                                       |                                                    | 0,2 %                                                                        | 1 %                                                                         |                                                     |                                                                                   |                                                                 |                                                                                   |                                                                     |       |                                            |                                         |
|                                       |                                                    | RP02<br>N/MM2                                                                |                                                                             | RM<br>N/MM2                                         | AL                                                                                | Z                                                               |                                                                                   |                                                                     |       |                                            | HB                                      |
| 345091                                | 8G221000                                           | 638                                                                          |                                                                             | 768                                                 | 21                                                                                | 52                                                              |                                                                                   |                                                                     |       |                                            | 228                                     |
| 345091                                | 8G221000                                           | C                                                                            | SI                                                                          | MN                                                  | P                                                                                 | S                                                               | N                                                                                 | CR                                                                  | CU    |                                            |                                         |
|                                       |                                                    | 0,102                                                                        | 0,560                                                                       | 0,410                                               | 0,022                                                                             | 0,023                                                           | 0,051                                                                             | 12,160                                                              | 0,123 |                                            |                                         |
| 345091                                | 8G221000                                           | NI                                                                           |                                                                             | CO                                                  |                                                                                   |                                                                 |                                                                                   |                                                                     |       |                                            |                                         |
|                                       |                                                    | 0,340                                                                        |                                                                             | 0,019                                               |                                                                                   |                                                                 |                                                                                   |                                                                     |       |                                            |                                         |

|                                                          |  |                                                        |  |                                                             |  |                                                                 |  |                                      |  |  |  |
|----------------------------------------------------------|--|--------------------------------------------------------|--|-------------------------------------------------------------|--|-----------------------------------------------------------------|--|--------------------------------------|--|--|--|
| Test : (1 = OK)                                          |  |                                                        |  |                                                             |  |                                                                 |  |                                      |  |  |  |
| 345091                                                   |  |                                                        |  |                                                             |  |                                                                 |  |                                      |  |  |  |
| C.INT = Corrosione intergranul<br>SCHL. = Schiacciamento |  | E.D.C. = Controllo non distrutt<br>FLANG = Flangiatura |  | P.P.N. = Prova pneumatica<br>REVFL = Appiatt. saldatura (Re |  | C.MES = Contr. antimescolament<br>P.RET = Essai de retournement |  | Note - Notes - Remarks - Bemerkungen |  |  |  |

EN 10204 / 3.1.8 AISI 410 X12CR13 NF EN10088-3 1.4006 IMA 4006 BARRE A CHAUD RON  
DE TOL.13 TRAITEE DECALAMINEE

**DOUGLAS CHERO Spa**

Quality Assurance

P.C. STEVANI VITTORIO

Signature

251 885 / 01

Le 15/03/04

Signature de l'inspecteur

Controllo marcatura, visivo e dimensionale : soddisfacente. Si certifica che i prodotti sopra descritti sono conformi alle prescrizioni dell'ordine  
L'analisi chimica è copia conforme a quella presente sul certificato del produttore

Contrôle de marquage, d'aspect et de dimensions satisfaisant. Nous certifions que le présent document reproduit avec exactitude les données du certificat  
producteur. L'analyse chimique a été relevée du certificat de la matière première.

Bezeichnung, besichtigung und ausmessung : Ohne beanstandung. Wir bestätigen hiermit dass die obengenannten erzeugnisse den bestellung vorschriften  
entsprechen. Die chemische zusammensetzung entspricht den lieferanten analyse.

The chemical analysis results are true and correct copy of the raw material supplier's certificate.

Resp. controllo qualità  
Resp. contrôle qualité  
Sachverständiger  
Quality control Mar



# DIMENSIONAL / VISUAL INSPECTION CERTIFICATE

N.: 02/342/05-V

Sheet: 1/2

CUSTOMER:  
KLAUS UNION ARMATUREN INTERNATIONAL for  
LURGI OEL GAS CHEMIE GMBH

Order: HH-02535-02  
Lurgi P.O.: 4567569-002 /  
1.69690 / 145

Our Job:  
05.0342

Client: 2<sup>nd</sup> MEGA METHANOL PLANT, ZAGROS PETROCHEMICAL COMPANY, SITE BANDAR  
ASSALUYEH, IRAN / Contract No.: 1.69690-10

## DIMENSIONAL INSPECTION CERTIFICATE

### TESTS EXECUTED

Parts Test

End-to-End Test

SW Ends Test

NPT Ends Test

BW Ends Test

NOT APPLICABLE

Remarks: FOR VALVES DESCRIPTION SEE ATTACHED SHEET 2/2

### APPLICABLE STANDARD

DOUGLAS CHERO DRAWINGS

DOUGLAS CHERO DRAWINGS

ASME B16.11

ASME B1.20.1

ASME B16.25

Test executed according to approved Drawings by: GUIDO SCHIAVETTI

RESULT: POSITIVE

SIGNATURE:

*Guido Schiavetti*

We declare that all components have made according to applicable standard, constructive specifications and DOUGLAS CHERO S.p.A. constructive drawings.

Quantity Checked: 100%

Q.A. - Q.C.

CUSTOMER'S Inspector

DOUGLAS-CHERO S.p.A.  
Quality Control  
CREDALI STEFANO

DATE: 28/10/05

## VISUAL INSPECTION CERTIFICATE

VISUAL TEST EXECUTED ON ROUGH AND MACHINED SURFACE

RESULT: POSITIVE

SIGNATURE:

DOUGLAS-CHERO S.p.A.  
Quality Control  
CREDALI STEFANO

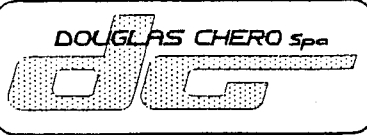
Quantity Checked: 100%

Q.A. - Q.C.

CUSTOMER'S Inspector

DOUGLAS-CHERO S.p.A.  
Quality Control  
CREDALI STEFANO

DATE: 28/10/05



**DIMENSIONAL / VISUAL  
INSPECTION CERTIFICATE**

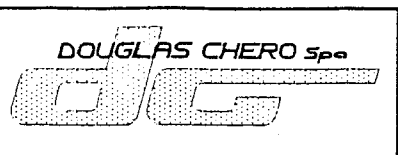
No.: 02/342/05-V

Sheet: 2/2

**LIST OF ITEMS**

| ITEM | IDENT NO        | DESCRIPTION                                                                      | SIZE | Q.TY |
|------|-----------------|----------------------------------------------------------------------------------|------|------|
| 370  | S420-BW<br>4,55 | GATE VALVE long pattern c.1500 FB BB BW Sch.80 -<br>Seats+Wedge Stel. [ TRIM 5 ] | 1"   | 1    |
| 380  | V305            | GLOBE VALVE c.800 RB BB SW -Seat+Disk Stel.<br>[ TRIM 5 ]                        | 1"   | 6    |
|      |                 |                                                                                  |      |      |

DOUGLAS-CHERO S.p.A.  
Quality Control  
*CREDAL STEFANO*

|                                                                                  |                                      |                                 |
|----------------------------------------------------------------------------------|--------------------------------------|---------------------------------|
|  | <b>PRESSURE TEST<br/>CERTIFICATE</b> | No.: 02/342/05-PR<br>Sheet: 1/1 |
|----------------------------------------------------------------------------------|--------------------------------------|---------------------------------|

Customer: KLAUS UNION ARMATUREN INTERNATIONAL for  
 LURGI OEL GAS CHEMIE GMBH  
 P.Order: HH-02535-02  
 Lurgi P.Order: 4567569-002 / 1.69690 / 145  
 Client Ref.: 2<sup>nd</sup> MEGA METHANOL PLANT, ZAGROS PETROCHEMICAL  
 COMPANY, SITE BANDAR ASSALUYEH, IRAN  
 Contract No.: 1.69690-10  
 Object: DOUGLAS CHERO CERTIFICATE No. 051034 Dtd.: 28/10/05  
 Remarks: TESTS CARRIED OUT ON 100%  
 TESTS CARRIED OUT ACCORDING TO D.C. PROCEDURE 140 R.5

| ITEM | IDENT No.       | DESCRIPTION                                                                      | SIZE | Q.TY |
|------|-----------------|----------------------------------------------------------------------------------|------|------|
| 370  | S420-BW<br>4,55 | GATE VALVE long pattern c.1500 FB BB BW Sch.80 -<br>Seats+Wedge Stel. [ TRIM 5 ] | 1"   | 1    |
| 380  | V305            | GLOBE VALVE c.800 RB BB SW -Seat+Disk Stell.<br>[ TRIM 5 ]                       | 1"   | 6    |

|                         | RATING<br>800 | RATING<br>1500 | ALL RATINGS  |
|-------------------------|---------------|----------------|--------------|
| TYPE OF TEST            | PRESSURE      | PRESSURE       | TIME         |
| - HYDRAULIC SHELL TEST  | 211 BAR       | 388 BAR        | 60 Sec. min. |
| - BACK-SEAT TEST        |               |                |              |
| - HYDROSTATIC SEAT TEST | 156 BAR       | 285 BAR        | 60 Sec. min. |
| - AIR SEAT TEST         | 6 BAR         | 6 BAR          | 30 Sec. min. |

GENERAL REMARKS: AS PER PROCEDURE DOUGLAS CHERO No. 140 Rev.5,  
 THE BACK SEAT TEST FOR GLOBE VALVES IS  
 CARRIED OUT TOGETHER WITH HYDRAULIC SHELL  
 TEST.

**NOTE: NO LEAKAGE DETECTED DURING HYDRAULIC/PNEUMATIC TESTS.**

DOUGLAS-CHERO S.p.A.  
 Quality Control  
 CREDAL STEFANO



Postfach 10 13 49  
D - 44713 Bochum  
Blumenfeldstr. 18  
D - 44795 Bochum

Telefon (0234) 4595 - 0  
Telefax (0234) 43 23 87

## Abnahmeprüfzeugnis DIN EN 10204 - 3.1B

Inspection certificate

**Besteller:** Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt  
**Customer:**

**Bestell-Nr.:** Lurgi Job - No.: 69690-10  
**Order no.:** Lurgi OGC PO.-No.: 4569247-000 to -001/1.69690/136

**Project Name :** 2nd Zagros Methanol Plant - Iran

**Auftrag-Nr.:** HH - 02535- 01  
**Job no.:**

**Lieferumfang / range:**

| Pos   | Stck.<br>pcs. | Gegenstand<br>object                                                          | DN   | PN      | Werkstoff<br>material | Bemerkung<br>comment        |
|-------|---------------|-------------------------------------------------------------------------------|------|---------|-----------------------|-----------------------------|
| 00040 | 1             | Regulating Globe Valve<br>RB BB BW Sch. 160<br>BW 5,56<br>Seat and Disk Stell | 3/4" | Cl.1500 | A182/F22 C.3          | Valve Ident - No.: " V481 " |

**Auslegung + Prüfung nach** API 602 - BS EN ISO 15761, API 598 / BS EN 12266-1  
**Design and tests acc. To** ASME B16.34 - B16.25 - B16.11 - B1.20.1

**Sicht- und Funktionsprüfung:** o.k.  
**visual and functional test:**

**Festigkeits-/Dichtheitsprüfung:** Festigkeit / shell test = 388 bar Wasser / water (60 sec)  
**strength-/tightness-test:** Dichtheit Sitz / seat = 285 bar Wasser / water (60 sec)  
Rückdichtung / backseat = 285 bar Wasser / water (60 sec)  
Dichtheit Sitz / seat = 6 bar Luft / air (60 sec)

**Prüfungsergebnis:** ohne Beanstandung !  
**result:** no complaint !

*i. A. Walter*  
Bochum, den 28.02.2005 - WG **KLAUS UNION** GmbH & Co. KG  
Werksachverständiger:  
Manufacturer's authorized inspector: Walter Glass

**Anlage:** Dokumentation gemäß Material-Dokumentationsdeckblatt  
**enclosure** Documentation acc. to material cover sheet



# Materialdokumentations - Deckblatt

## Material Cover Sheet

|              |            |
|--------------|------------|
| Datum / Date | 25.02.2005 |
|--------------|------------|

Seite / Page 1

Sachbearbeiter

W. Glass,

Sachbearbeiter  
Person in charge

**Kommissions-Nr. /  
Reference No.**

Lurgi Job - No.: 69690-10  
Lurgi OGC PO,- No.: 4569247 - 000 to -001/ 1.69690 / 136

HH-02535-01

**Project Name:** 2nd Zagros Methanol Plant - Iran

[illegible]

26836

PAG. 1

**Evasi e Castelnuovo s.r.l.**

Via Carlo Porta, 1 - 23861 CESANA BRIANZA (LC)  
Tel. 031/85.59.38 - Fax 031/85.88.27  
Cod. Fisc. e Part. IVA 00209790138  
Reg. Soc. Trib. Lecco n. 5932 - C.C.I.A. 121373

Spett.

DOUGLAS CHERO SPA

LOC. PRADAGLIE

29013 CARPANETO PIACENTINO

PC

**CERTIFICATO DI COLLAUDO/INSPECTION CERTIFICATE**  
**UNI EN 10204 3.1 B**

**SISTEMA QUALITA' CERTIFICATO UNI EN ISO 9001/2000**  
**QUALITY SYSTEM CERTIFIED UNI EN ISO 9001/2000**

|                        |            |
|------------------------|------------|
| N.                     | DATA/DATE  |
| 000441                 | 27-11-2004 |
| D.D.T. / DELIVERY NOTE |            |
| N.                     | DATA/DATE  |

| COLATA /HEAT N. | MATERIALE/MATERIAL | ACCIAIERIA/STEEL PLANT | N.QUANTITY | DESCRIZIONE/DESCRIPTION |
|-----------------|--------------------|------------------------|------------|-------------------------|
| 414853          | F22                | ACC. VALBRUNA          | 288        | CORPO 4/9               |

**ANALISI CHIMICA / CHEMICAL ANALYSIS**

| C     | Mn    | Si    | P     | S     | Cr    | Ni | Mo    | Ti | V  | Cu | Al |
|-------|-------|-------|-------|-------|-------|----|-------|----|----|----|----|
| 0,090 | 0,450 | 0,410 | 0,024 | 0,003 | 2,220 |    | 0,910 |    |    |    |    |
| Sn    | Nb    | N     | Fe    | W     | Ta    | Co | Ca    | B  | Sb |    | CE |
|       |       |       |       |       |       |    |       |    |    |    |    |

**PROVE MECCANICHE/MECHANICAL TESTS**

| RS-YIELD<br>N./mm <sup>2</sup> | R-TENSILE<br>N./mm <sup>2</sup> | A%-ELONG | Z%-REDUCT |
|--------------------------------|---------------------------------|----------|-----------|
| 464,0                          | 623,0                           | 29,0     | 75,0      |

**IMPACT TEST - KV - J**

| TEST 1 | TEST 2 | TEST 3 | TEMP. °C |
|--------|--------|--------|----------|
|        |        |        |          |

| TRADE<br>MARK | HEAT<br>CODE | MATERIAL<br>CODE | MATERIAL<br>TYPE NR. | DWG |
|---------------|--------------|------------------|----------------------|-----|
| E.YO          |              |                  |                      |     |

**03 DIC. 2004**  
**DOUGLAS CHERO Spa**

Quality Assurance .....

P.C. STEFANI VITTORIO

Sig. ....

**TRATTAMENTO TERMICO / HEAT TREATMENT**

| DESCRIPTION     | HEATING °C | STAY TIME | COOLING    | HARDNESS |
|-----------------|------------|-----------|------------|----------|
| NORMALIZZAZIONE | 960        | 2,3       | ARIA CALMA |          |
| RINVENIMENTO    | 730        | 3,0       | ARIA CALMA |          |

- 1) The result of chemical analysis is a true and correct copy of the mill certificate issued by the manufacturer of the steel employed, or by the laboratory which has determined it.  
Il risultato delle analisi chimiche è la corretta trascrizione del certificato di colata emesso dall'acciaieria o dal laboratorio che li ha rilevati
- 2) Visual and dimensional control satisfactory.  
Controlli visivi e dimensionali soddisfacenti.
- 3) Results of test effected are in conformance with order's specifications.  
I risultati delle prove eseguite sono conformi alle specifiche richieste.
- 4) We confirm that materials used for the manufacture of supplied products are in conformance with the Directive 97/23/CE (PED), in particular with annex 1 par. 4 "Materials".  
Confermiamo che i materiali usati per la stampaggio dei prodotti forniti sono conformi alla Direttiva 97/23/CE (PED) e particolarmente all'allegato 1 paragrafo 4 "Materiali".

APPROVATO/APPROVED

COLLAUDATORE/INSPECTOR

EMESSO/ISSUED

**EVASI E CASTELNUOVO s.r.l.**  
**STAMPERIA IN FERRIE E ACCIAIO**

# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.l.

Stab.: 38100 BOLZANO (Italia) - Via A. Volta, 4

Cliente / Customer/Purchaser/Client  
ACC. VALBRUNA SPA-MAG. CORMANO  
VIA BIZZOZZERO, 125  
20032 - CORMANO (MI) - MI

Produttore: STABILIMENTO DI BOLZANO  
Hersteller/Usine producer

Oggetto Prove: - Ricolto lavorabile Pelato  
Prüfungszustand/Inspection state



## CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION EN 10204, 3.1.B

Avviso di Spedizione: A-8203006810  
Lieferungsbescheinigung/Rpt. No.

Certificato nr: MEST067962/2003/  
Prüfung/Inspection

Conferma ordine nr: MI03008368  
Werkstatt/Order Ref. nr.

Ordine nr: TRASFERIMENTO  
Bestell/Nr. order/Commande

Marchio di Fabbrica:  
Zeichen des Unternehmens  
Trade mark  
Signe de l'usine production

Tipo di Elaborazione: E+AOD  
Erzeugnisart/Produktion process/Mode d'allocation

Funzione del Collaudatore:  
Stempel des Werkstatteinverständigen  
Inspector's stamp/Fonction de l'essayeur



### Specifiche:

Anforderungen / Requirements / Exigences

VALBRUNA 2002 410 A 0  
IE (1) SA479 2001 S41000 A (1)  
- TM A479 2001 S41000 A 0  
(0) SEC II FTA 2001 EDITION  
1) SEC II FTA 2001 EDITION  
(2) Chemical analysis only and mech. properties (for ASTM A182[M])

ASIS 410 0  
ASTM A182 2000C S41000 CLASS2 (2)  
EN 10088-3 95 1.4006 A 0

ASME (1) SA182 2001 S41000 CLASS2 (0)  
ASTM A278 2000A S41000 A 0  
EN 10272 2000 1.4006 A 0

Qualità: 410

Werkstoff/Quality/Qualité

Marca: VAL1

Markenbezeichnung/Brand/Marque

Punzonatura:

Markenstempel/Marking/Markings

| Pos. nr.<br>Pos. nr.<br>Nr. de pos. | Oggetto<br>Gegenstand<br>Product description<br>Description du produit | Dimensioni - mm<br>Abmessungen<br>Dimensions<br>Dimension | Tolleranza<br>Tolérance<br>Allowance<br>Tolerance | Lunghezza - mm<br>Länge<br>Length<br>Longueur | Colata<br>Schmelze<br>Heat<br>Casta | Pezzi<br>Stückzahl<br>Pieces<br>Pièces | Peso - KG<br>Gewicht<br>Weight<br>Poids | Lotto nr.<br>Losn.<br>Lot nr.<br>Lot nr. |
|-------------------------------------|------------------------------------------------------------------------|-----------------------------------------------------------|---------------------------------------------------|-----------------------------------------------|-------------------------------------|----------------------------------------|-----------------------------------------|------------------------------------------|
| 0010                                | Tondo                                                                  | 25,000                                                    | K12-MIN                                           | 5000 / 5500                                   | 237137                              |                                        | 4470,0<br>1786                          | 318901810                                |

Sono state soddisfatte tutte le condizioni richieste  
Die gestellten Anforderungen sind in Anlage erfüllt  
The material has been furnished in accordance with the requirements  
Le matériel a été livré conforme aux exigences

Controllo antimescolanze: OK  
Verwechslungsprüfung: sprechbeweislos durchgeführt  
Insulating testing performed: OK  
Contrôle antimeslange: satisfaisant

Controllo visivo e dimensionale: soddisfa le esigenze:  
Besichtigung und Abmessung: ohne Beanstandung  
Visual inspection and dimensional check: satisfactory  
Contrôle visuel et dimensionnel: satisfaisant

| TEST                                  | Prova/Prüfung<br>Specification<br>Lap. Char. Test<br>Weld Char. Test<br>Lap. Char. Test<br>mm | ° C | Posiz.<br>Sagitt.<br>Position<br>Position | Snervamento<br>Ductility<br>Yield Point<br>Rp 0,2 %<br>N/mm2 | Snervamento<br>Ductility<br>Yield Point<br>Rp 0,2 %<br>N/mm2 | Resistenza<br>Tensile strength<br>Rm<br>N/mm2 | Allungamento<br>Elongation<br>A5<br>% | Allungamento<br>Elongation<br>E2<br>% | Strizione<br>Reduction of area<br>Z<br>% | RA<br>% | Resistenza<br>Impact Value<br>Joules<br>Joules | Durezza<br>Hardness<br>HB |
|---------------------------------------|-----------------------------------------------------------------------------------------------|-----|-------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------|-----------------------------------------------|---------------------------------------|---------------------------------------|------------------------------------------|---------|------------------------------------------------|---------------------------|
| Valori richiesti 1<br>Values required | min                                                                                           |     |                                           | 380                                                          | -                                                            | 585                                           | -                                     | 20                                    | -                                        | 45      | -                                              | 167                       |
|                                       | max                                                                                           |     |                                           |                                                              |                                                              | 730                                           |                                       |                                       |                                          |         |                                                | 220                       |
| A                                     | 12.50                                                                                         | 20  | L                                         | 439                                                          |                                                              | 679                                           | 30                                    | 34                                    | 68                                       | 68      |                                                | 202                       |

1) - Abmessung/Dimensions - Dimensions/Dimensions

### Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata:<br>Schmelze/Heat<br>Casta | 0,050 min<br>0,150 max | 1,00 | 1,00 | 11,50<br>12,50 | 0,50 | 0,040 | 0,030 | - | - | - | - | - | - | - | - |
|-----------------------------------|------------------------|------|------|----------------|------|-------|-------|---|---|---|---|---|---|---|---|
|                                   | C %                    | Si % | Mn % | Cr %           | Ni % | P %   | S %   |   |   |   |   |   |   |   |   |
| 237137                            | 0,136                  | 0,36 | 0,86 | 12,59          | 0,22 | 0,017 | 0,024 |   |   |   |   |   |   |   |   |

The Quality Management System is Certified acc. Pressure Equipment Directive (97/23/EC) Annex 1, s. 4.3 by TÜV and LLOYD'S

30 APR. 2004

DOUGLAS CHERO Spa

Quality Assurance .....

P.C. STEVANI VITTORIO

Sign: .....

Bolzano, 10/12/03  
Noel/DBL008

Il collaudatore di stabilimento / der Werkstatteinverständige / Works inspector / L'agent d'usine

S. Cain

Pagina - 1 di 1

200625/02

# MECCANICHE MORANDI s.r.l.

VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.949 • Fax 0331.302.948  
E-mail: meccmorandi@libero.it Codice Fiscale e Partita IVA 01779110129

CERTIFICATO DI COLLAUDO  
Inspection certificate

26370

N°6126/DCH DATE-09.11.04

CLIENTE- DOUGLAS CHERO Spa  
Customer

ORDINE-242000  
Order

BOLLA CONSEGNA N-3658  
Delivery note

## DESCRIZIONE DEL MATERIALE

## MATERIAL DESCRIPTION

| Item | Quantity | Article              | Material              | Heat n. |
|------|----------|----------------------|-----------------------|---------|
| 1    | 2000     | VITI TE. M 12 X 30,5 | ASTM A 193/A 193M B16 | AQ2869  |

## ANALISI CHIMICA

## CHEMICAL ANALYSIS

| %             | C     | Mn   | Si   | Cr   | Mo   | S     | P     | V    | Al    |
|---------------|-------|------|------|------|------|-------|-------|------|-------|
| REQUIRED min. | 0,36  | 0,45 | 0,15 | 0,80 | 0,50 |       |       | 0,25 |       |
| VALUE max.    | 0,47  | 0,70 | 0,35 | 1,15 | 0,65 | 0,040 | 0,035 | 0,35 | 0,015 |
| HEAT n.       | 0,415 | 0,57 | 0,26 | 0,98 | 0,60 | 0,003 | 0,007 | 0,28 | 0,008 |

## CARATTERISTICHE MECCANICHE

## MECHANICAL REQUIREMENTS

|               | Rm.     | Rp. (0,2) | A4   | Z.   | Hardness   |
|---------------|---------|-----------|------|------|------------|
| REQUIRED min. | 860 MPa | 725 MPa   | 18%  | 50%  | max 35 HRC |
| ACTUAL VALUE  | 987     | 912       | 20,6 | 59,5 | 31         |

## HEAT TREATMENT

Quenched at : 925°C to 954°C oil  
Tempering : 2 hours at 650°C min.

Visual and dimensional test = SATISFACTORY

This certificate has been tested in according with the specification included in your order.

- CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

QUALITY CONTROL

15 NOV. 2004

**DOUGLAS CHERO Spa**

Quality Assurance .....  
P.C. STEFANO VITTORIO  
Sign. ....

MECCANICHE MORANDI s.r.l.  
Via Magenta n. 27  
21015 LONATE POZZOLO (VA)

F.L.L. **BONOMI & C. SNC**

**STAMPAGGIO A CALDO DELL'ACCIAIO**  
22030 CESANA BRIANZA (Como)  
Via C. Porta, 8 - Tel. 031/658798 - Fax 857597

TEST CERTIFICATE  
CERTIFICATO DI COLLAUDO  
3.1B-AS-TO SECONDO  
DIN 50049

No 23/95 (40337)

DATE 15.05.1995

Spett.le Ditta  
DOUGLAS CHERO SPA  
Loc. Pradaglie  
CARPANETO P.NO (Pc)

|                                                                                                                                                                                                                                                                                                                                       |  |                                     |      |                                                                      |       |                                                    |                                      |                           |                              |       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------|------|----------------------------------------------------------------------|-------|----------------------------------------------------|--------------------------------------|---------------------------|------------------------------|-------|
| CUSTOMER ORDER - ORDINE CLIENTE<br>9500196/BP AGG.                                                                                                                                                                                                                                                                                    |  | P.O.                                |      | BOLLA<br>152 del 15.05.1995                                          |       | INVOICE - FATTURA                                  |                                      |                           |                              |       |
| DESCRIPTION OF PARTICULAR - DESCRIZIONE DEL PARTICOLARE<br>BONNET 4/8                                                                                                                                                                                                                                                                 |  |                                     |      | TYPE AND MATERIAL SPECIFICATIONS - TIPO E SPECIFICA MATERIALE<br>F22 |       |                                                    |                                      |                           |                              |       |
| HEAT NUMBER<br>NUMERO COLATA<br>STEEL MILL<br>ACCIAIERIA<br>SI M. CERT. N.<br>CERT. ACC. N.<br>345750<br>THYSSEN AG<br>576397-JU                                                                                                                                                                                                      |  | CHEMICAL ANALYSIS - ANALISI CHIMICA |      |                                                                      |       |                                                    |                                      |                           |                              |       |
|                                                                                                                                                                                                                                                                                                                                       |  | C                                   | SI   | MN                                                                   | P     | S                                                  | CR                                   | MO                        | NI                           | AL    |
|                                                                                                                                                                                                                                                                                                                                       |  | 0,089                               | 0,30 | 0,47                                                                 | 0,013 | 0,008                                              | 2,26                                 | 0,97                      | 0,19                         | 0,028 |
| HEAT CODE ON FORGING<br>CODICE COLATA<br>BMR                                                                                                                                                                                                                                                                                          |  | DISEGNO DEL FORGIATO APP.<br>4/8    |      | QUANTITY - QUANTITÀ<br>54                                            |       | MECHANICAL PROPERTIES - CARATTERISTICHE MECCANICHE |                                      |                           |                              |       |
|                                                                                                                                                                                                                                                                                                                                       |  |                                     |      |                                                                      |       | YIELD STRENGTH<br>PSI<br>SNERVAM N/mm²             | TENS. STRENGTH<br>PSI<br>ROTT. N/mm² | ELONG<br>2"50<br>ALLUNG % | RED OF AREA<br>%<br>CONTRAZ. | HB    |
| IMPACT VALUE - RESILIENZA                                                                                                                                                                                                                                                                                                             |  |                                     |      | 438                                                                  |       | 584                                                |                                      | 24,9                      |                              | 70,6  |
| HEAT TREATMENT - TRATTAMENTO TERMICO<br>NORMALIZZATI E RINVENUTI SECONDO ASTM A182.<br>RISCALDO DEI PARTICOLARI A 960°C PER 1 ORA OGNI 25 mm. DI SPESSORE E RAFFREDDAMENTO IN ARIA CALMA.<br>SUCCESSIVO RISCALDO A 735° + 750°C PER 2 ORE OGNI 25 mm. DI SPESSORE, RAFFREDDATI IN FORNO FINO A 200°C E RAFFREDDAMENTO FINALE IN ARIA. |  |                                     |      |                                                                      |       |                                                    |                                      |                           |                              |       |

REMARKS

- The result of chemical analysis is a true and correct copy of the mill certificate issued, by the manufacturer of the steel employed, or by the laboratory which has determined it.  
\* I risultati delle analisi chimiche è in corretta trascrizione del certificato di colata emesso dall'acciaieria o dal laboratorio che li ha rilevati.
- The material or components shipped under the above order number did not come in direct contact with mercury or any of its components, or with any mercury containing devices employing a single boundary of containment, during the manufacturing process inspection or storage.  
\* Il materiale o i particolari spediti per quest'ordine non sono mai venuti a contatto diretto con mercurio o con elementi contenenti mercurio durante la fase di lavorazione, controllo o immagazzinamento.

02 GIU. 1995

**DOUGLAS CHERO Spa**

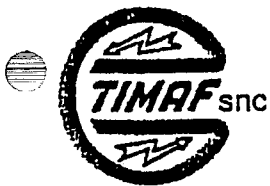
Quality Assurance

P.C. STEFANO VITTORIO

Sign. *[Signature]*

G.A. MANAGER  
RESP. ASS. WRAZ. QUALITÀ

I certify these tests to be correct as contained in the records of the company  
certifico che tutti i dati sono corretti e uguali a quelli registrati presso F.L.L. Bonomi  
C.C. MANAGER  
RESPONSABILE CONTROLLO CERTIFICATI  
*[Signature]*



24 MAG 1995

Piacenza, Il \_\_\_\_\_

di SIRACUSA MARIO e INES  
29100 PIACENZA  
Via Leopardi, 30/a  
(zona Veggioletta)  
Tel. (0523) 49.95.40  
Fax (0523) 49.02.09  
Cod. Fisc. e P. IVA 00723680332  
C.C.I.A.A. 103743  
Iscr. Trib. PC n. 5841

Spett.le Ditta  
DOUGLAS CHERO Spa  
Loc. Pradaglio  
29013 CARPANETO PC

Ogg.: Certificato di t.l. n° 52/95  
Rif. : TABELLA 58

#### TRATTAMENTO TERMICO ACCIAI FERRITICI SECONDO ASTM A182.

##### Normalizzazione e Rinvenimento:

Riscaldamento dei particolari alla temperatura di 960°C, mantenuti a tale valore per 1 ora ogni 25mm di spessore e raffreddati in aria calma.  
Successivo riscaldamento a 735-750°C, mantenuti a tale valore per 2 ore ogni 25mm di spessore raffreddati in forno fino a 200°C e raffreddamento finale in aria calma.

##### DESCRIZIONE

N° 624 Capp. 4/8 mat. F11 cod. BMR  
N° 54 Capp. 4/8 mat. F22 cod. BMR  
N° 46 Capp. 4/8 mat. F9 cod. BMR

**DOUGLAS CHERO Spa**

Quality Assurance

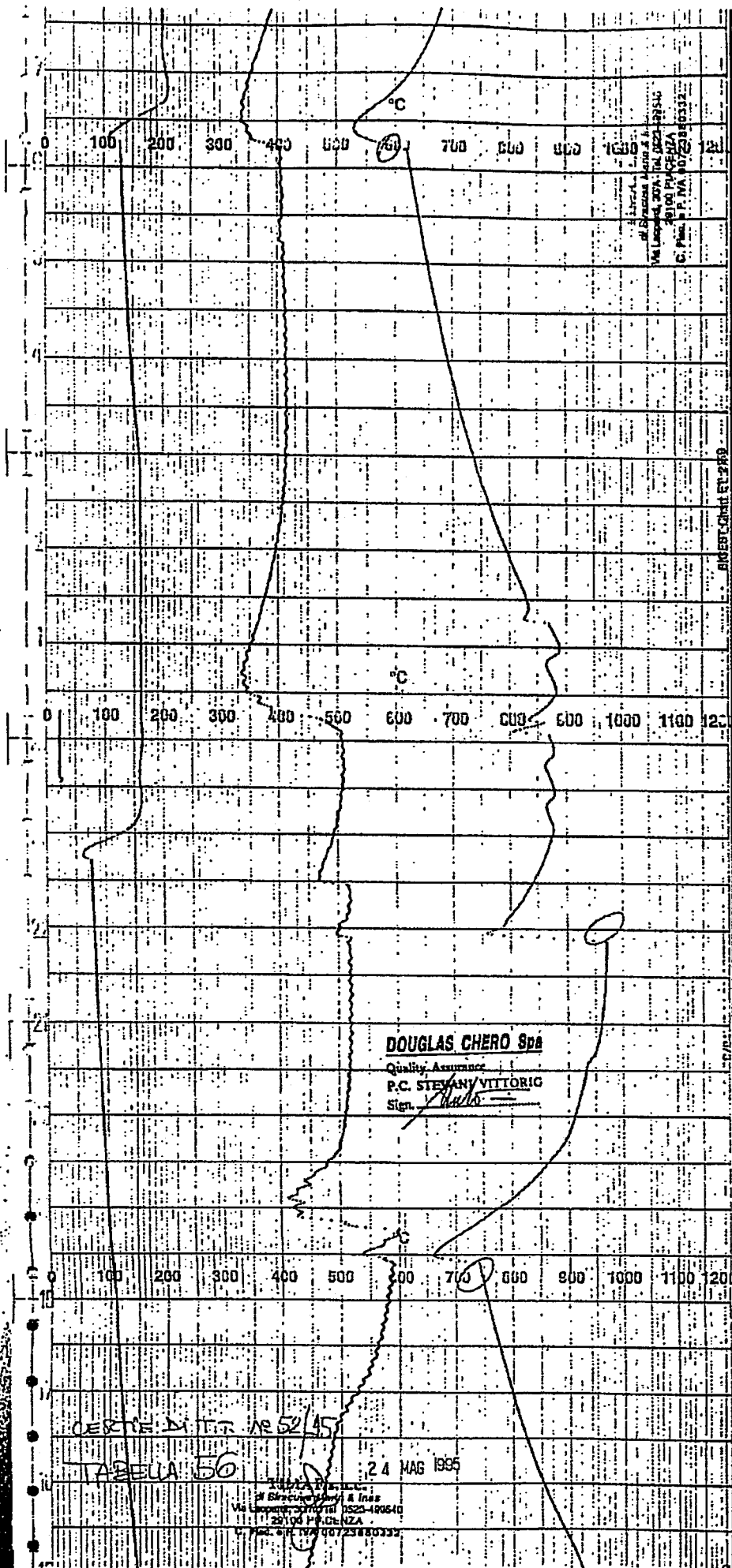
P.C. STEFANO VITTORIO

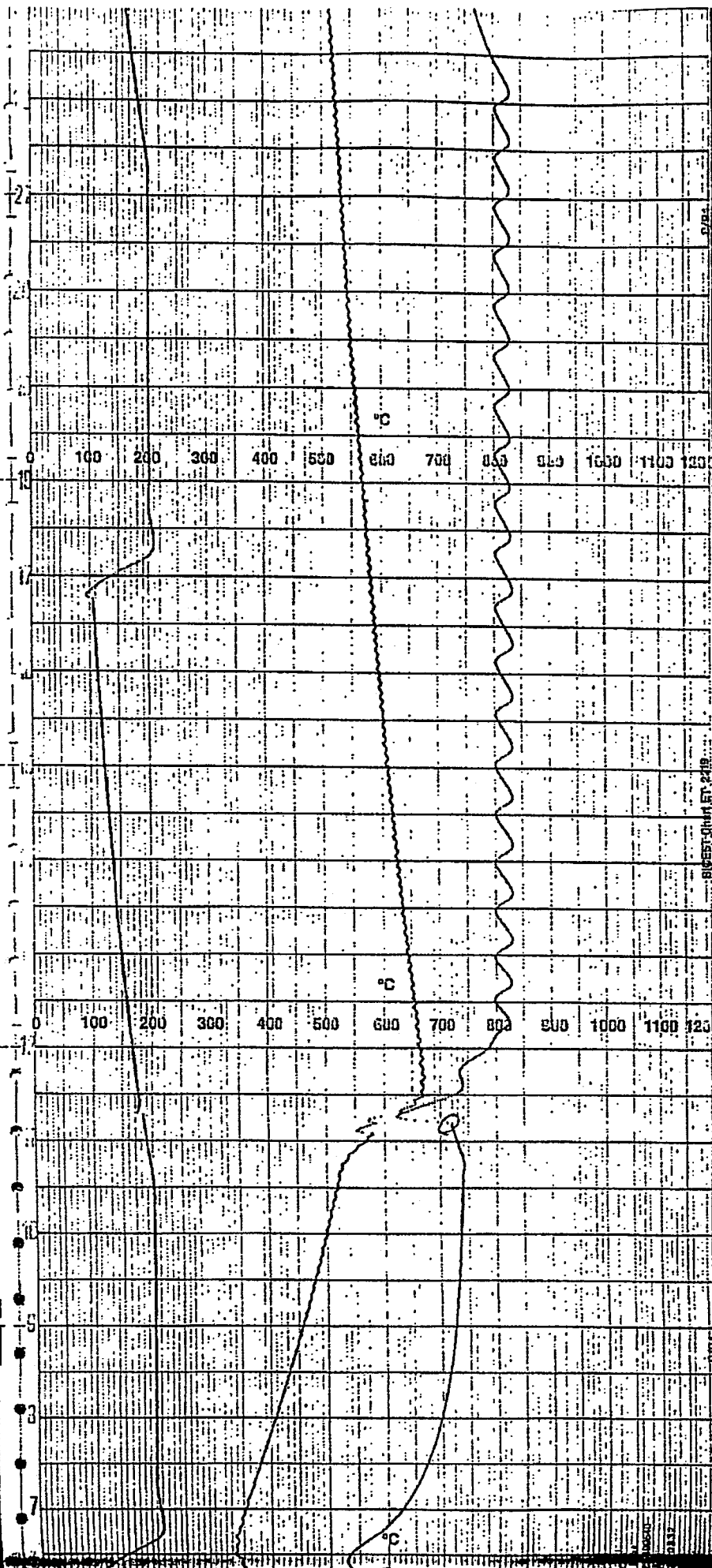
Sign. \_\_\_\_\_

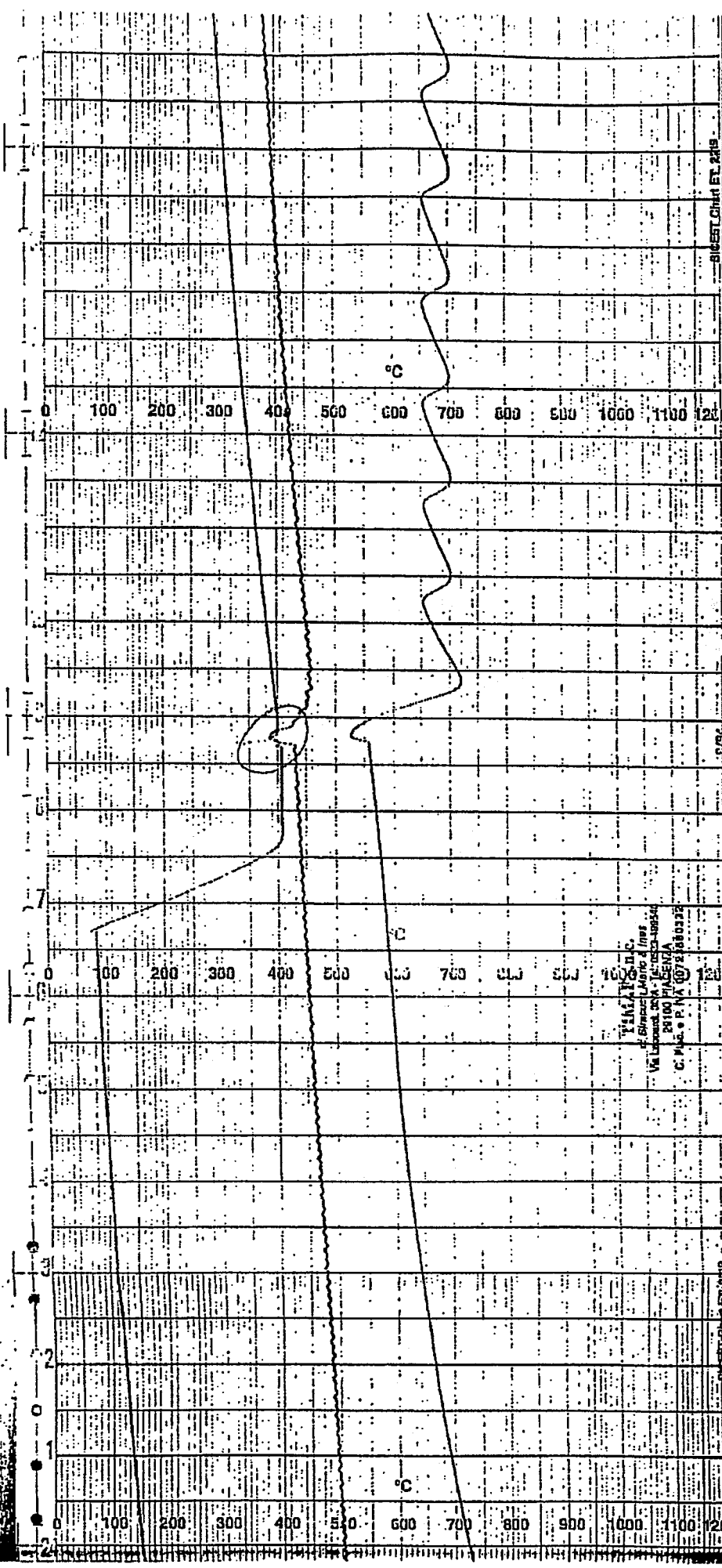
**TIMAF S.N.C.**  
di SIRACUSA MARIO & INES  
Via Leopardi, 30/a - Tel. 0523-499540  
29100 PIACENZA  
C.C.I.A.A. n° 103743  
C. Fisc. e P. IVA 00723680332

##### TRATTAMENTI TERMICI

Tempera A.F. - M.F. - Cementazione Tempra A.C. - Carbocementazione - Bonifica - Normalizzazione  
Distensione (1200x1200x2000) - Nitrurazione - Ricottura - Fosfatazione al manganese - Brunitura





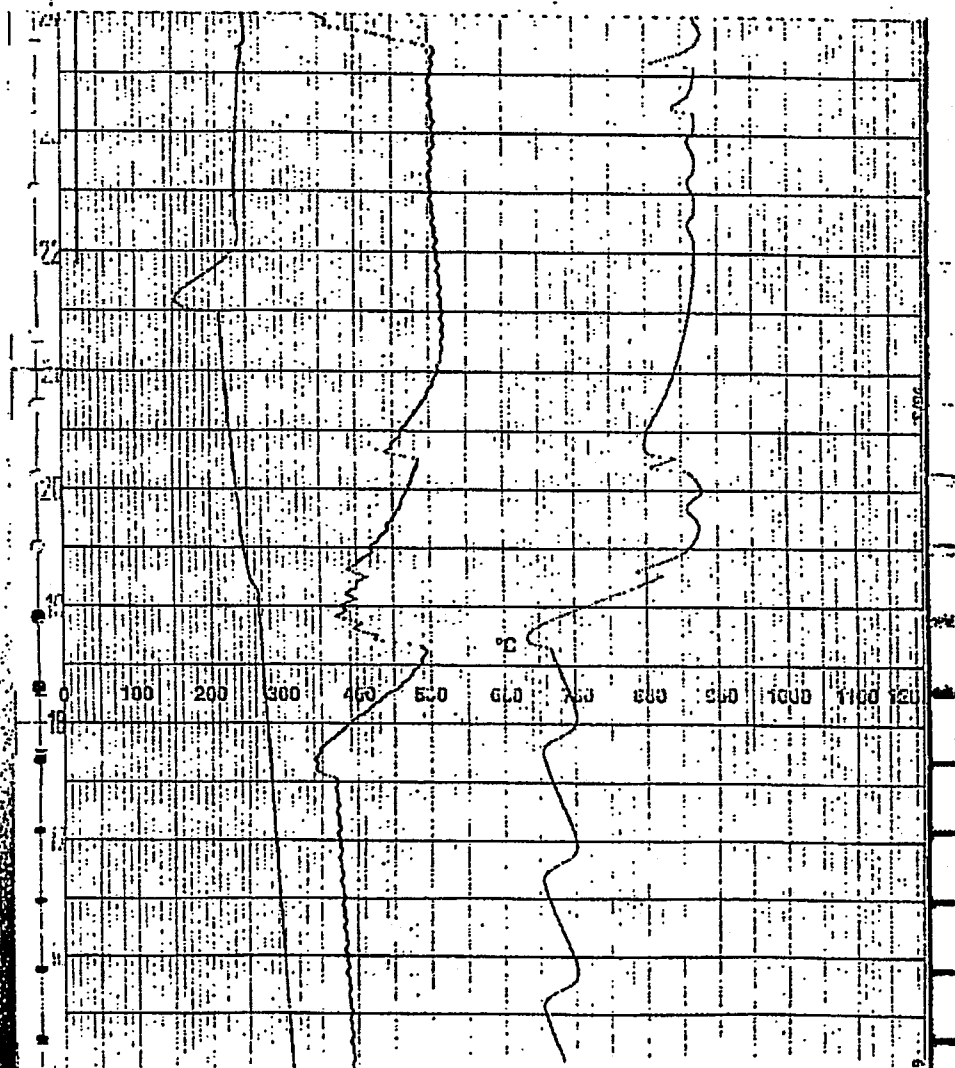


SHEET CHART ET 249

1984

SHEET CHART ET 249

VIMAT, INC.  
25100 PINEVALE  
C. MAE, P. MA 0072380325



**Valbruna S.p.A.**

26100 VICENZA (Italia) - Via dell'Industria, 25 r.l.

Stabilimento BOZZANO (Italia) - Via A. Volta, 4

Credito / Bank / Bank Credit

Produttore: **ACCIAIERIE VALBRUNA S.P.A.**  
Hersteller / Make producer

Oggetto Prove: - Riscotto lavorabile Trafilato  
Prüfgegenstand / Item inspected / Prüfung

Avviso di Spedizione: A-MI04014062  
Unternehmens-Packing Identif.

Ordine nr: DEL 29.01.04  
Bestell / Your order / Compagno

Tipo di Elaborazione: E+AOD  
Erzeugnisverfahren / Working process / Mode d'elaboration

Certificato nr: MEST106950/2004  
Prüfung / Test / Essai

Conferma ordine nr: MI04000714  
Werk / Our Order / Ref. nr.

Marchio di Fabbrica:  
Zeichen des Herstellers  
Trade mark  
Signe de l'usine / producer



Firma del Collaudatore:  
Stempel des Werkstättverständigen  
Inspector's stamp / Polier / de l'atelier

### Specifiche

Anforderungen / Requirements / Exigences

ASTM A182 2000C S41000 CLASS2 (m) 0  
(0) Chemical analysis only and mech. properties (for ASTM A182(M)) 0

Qualità: S41000

Werkstoff / Material

Marc: VAL1

Markenbezeichnung / Brand / Marque

Prüfungsurkunde:

Kennzeichnung / Marking / Marque

| Pos. nr.<br>Pos. nr.<br>N. de poste | Oggetto<br>Objekt<br>Product description<br>Description du produit | Dimensioni - mm<br>Abmessungen<br>Dimension<br>Dimension | Tolleranza<br>Toleranz<br>Allowance<br>Tolerance | Lunghezza - mm<br>Länge<br>Length<br>Longueur | Colata<br>Schmelze<br>Heat<br>Coulée | Pezzi<br>Stückzahl<br>Pieces<br>Pièces | Peso - KG<br>Gewicht<br>Weight<br>Poids | Lotto nr.<br>Losnr.<br>Lot nr.<br>Lot nr. |
|-------------------------------------|--------------------------------------------------------------------|----------------------------------------------------------|--------------------------------------------------|-----------------------------------------------|--------------------------------------|----------------------------------------|-----------------------------------------|-------------------------------------------|
| 0010                                | Tondo                                                              | 14,000                                                   | H9-MIN                                           | 3900 / 4000                                   | 237840                               |                                        | 5985,0<br><i>Mol</i>                    | 403302310                                 |

Sono state soddisfatte tutte le condizioni richieste  
Die gestellten Anforderungen sind lt. Anlage erfüllt  
The material has been furnished in accordance with the requirements  
Le matériel a été fourni conforme aux exigences

| TEST                                                             | Prova / Prüfung<br>Sonderprüfung<br>Längs Zugversuch<br>Zugversuch<br>Long. Zugversuch<br>Long. Zugversuch<br>mm | °C         | Profil<br>Profil<br>Profile<br>Profil | Snervamento<br>Zugversuch<br>Yield stress<br>Yield stress<br>Rp 0,2%<br>N/mm2 | Snervamento<br>Zugversuch<br>Yield stress<br>Yield stress<br>Rp 0,2%<br>N/mm2 | Resistenza<br>Zugversuch<br>Tensile strength<br>Tensile strength<br>Rm<br>N/mm2 | Allungamento<br>Zugversuch<br>Elongation<br>Elongation<br>E 4d<br>% | Stirazione<br>Zugversuch<br>Reduction of area<br>Reduction of area<br>RA<br>% | Resistenza<br>Zugversuch<br>Tensile strength<br>Tensile strength<br>Rm<br>N/mm2 | Durezza<br>Härte<br>Hardness<br>Dureté<br>HB |
|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|------------|---------------------------------------|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------------------|----------------------------------------------|
| Valori richiesti 1<br>Anforderungen<br>Requirements<br>Exigences |                                                                                                                  | min<br>max |                                       | 380                                                                           | -                                                                             | 585                                                                             | - 18                                                                | - 35                                                                          | -                                                                               | 167<br>229                                   |
| A                                                                | 12.5                                                                                                             | 20 L       |                                       | 610                                                                           |                                                                               | 698                                                                             | 22                                                                  | 68                                                                            |                                                                                 | 215                                          |

1) L=Longitudinale, G=Transversale, T=Trasversale

### Analisi chimica

Chemische Zusammensetzung / Chemical Analysis / Analyse chimique

| Colata:<br>Schmelze / Heat<br>Coulée | - min<br>0,15 max | 1,00 | 1,00 | 11,50<br>13,50 | 0,50 | 0,040 | 0,030 | - | - | - | - | - | - | - | - |
|--------------------------------------|-------------------|------|------|----------------|------|-------|-------|---|---|---|---|---|---|---|---|
|                                      | C %               | Si % | Mn % | Cr %           | Ni % | P %   | S %   |   |   |   |   |   |   |   |   |
| 237840                               | 0,14              | 0,36 | 0,70 | 12,55          | 0,27 | 0,017 | 0,024 |   |   |   |   |   |   |   |   |

Made in Italy No welding or weld repair Material free from Mercury or radio-activity contamination  
The Quality Management System is Certified acc. Pressure Equipment Directive (97/23/EC) Annex 1, 2, 4.3 by TÜV and LLOYD'S

**29 GIU. 2004**  
**DOUGLAS GHERO Spa**

Quality Assurance .....  
P.C. STEFANO VITTORIO  
Sign. ....

Vicenza, 17/05/04  
Mod. VCO112

Il collaudatore di stabilimento / der Werkstättverständiger / Works Inspector / L'agent d'usine

M. Rizzotto

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# Acciaierie Valbruna S.p.A.

38100 VICENZA (Italia) - Viale della scienza, 25 z.l.

Stab.: 38100 BOLZANO (Italia) - Via A. Volta, 4

Clienti / Destinatari/Customers  
ACC. VALBRUNA SPA-MAG. CORMANO  
VIA BIZZOZZERO, 125  
20032 - CORMANO (MI) - MI

Produttore: STABILIMENTO DI BOLZANO  
Hersteller/Produktionsbetriebe

Oggetto Prove: Secondo esecuzione Ricotto lavorabile Pelato  
Prüfungsauftrag/Prüfungsauftrag



## CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION EN 10204, 3.1.B

Ø20 F6Rk

Avviso di Spedizione: A-8203003486  
Lieferungs-/Packungsschein

Certificato nr: MEST055587/2003/  
Prüfungsschein

Conferma ordine nr: MI03007175  
Werk/Order Confirmation nr.

Marchio di Fabbrica:  
Zeichen des Lieferanten  
Trade mark  
Signe de l'usine productrice

Funzione del Collaudatore:  
Stempel des Werks/verantwortlicher  
Inspector's stamp/Plomage des l'inspecteur



### Specifiche:

Anforderungen / Requirements / Exigences

VALBRUNA 2002 410 A Ø  
ASME (1) SA479 2001 S41000 A (1)  
ASTM A479 2001 S41000 A Ø  
PTA 2001 EDITION  
PTA 2001 EDITION  
(2) Chemical analysis only and mech. properties for ASTM A182(M)

AISI 410 Ø  
ASTM A182 2000C S41000 CLASS2 (2)  
EN 10088-3 95 1.4008 A Ø

ASME (1) SA182 2001 S41000 CLASS2 (2)  
ASTM A276 2000A S41000 A Ø  
EN 10272 2000 1.4008 A Ø

Qualità: 410

Abnahmekategorie

Marca: VAL1

Markenbezeichnung/Brand/Marken

Funzionatura: 410

Kennzeichnung/Funktion/Torque

| Pos. nr.<br>Pos. nr.<br>No. de piece | Oggetto<br>Designated<br>Product description<br>Design. de profil | Dimensioni - mm<br>Abmessungen<br>Dimensions<br>Dimensions | Tolleranze<br>Toleranz<br>Allowance<br>Tolerance | Lunghezza - mm<br>Länge<br>Length<br>Longueur | Colata<br>Schmelze<br>Heat<br>Coulée | Pezzi<br>Stückzahl<br>Pieces<br>Pièces | Peso - KG<br>Gewicht<br>Weight<br>Poids | Lotto nr.<br>Losn.<br>Lot nr.<br>Lot nr. |
|--------------------------------------|-------------------------------------------------------------------|------------------------------------------------------------|--------------------------------------------------|-----------------------------------------------|--------------------------------------|----------------------------------------|-----------------------------------------|------------------------------------------|
| 0020                                 | Tondo                                                             | 20,000                                                     | K12-MIN                                          | 5000 / 5500                                   | 236784                               |                                        | 7521,0<br>1007                          | 310700880                                |

Sono state soddisfatte tutte le condizioni richieste  
Die gestellten Anforderungen sind in Anlage erfüllt  
The material has been furnished in accordance with the requirements  
Le matériel a été livré conforme aux exigences

Controllo antimescolanze: OK  
Verwechslungsprüfung geschweißter Anschlüsse  
Auditing testing performed: OK  
Controllo antimescolanze: OK

Controllo visivo e dimensionale: soddisfatta la esigenza:  
Besichtigung und Ausmessung ohne Beanstandung  
Visual inspection and dimensional check satisfactory  
Contrôle visuel et dimensionnel satisfaisant

| TEST                                                                | Prove/Prüfung<br>Sonderprüfungen<br>Longitudinal<br>Sonderprüfungen<br>Longitudinal<br>Long. tests, mm | °C | Prove<br>Sonderprüfungen<br>Longitudinal<br>Sonderprüfungen<br>Longitudinal<br>Long. tests, mm | Snervamento<br>Grenze<br>Yield Stress<br>Ultimate strength<br>Rp 0,2%<br>N/mm2 | Snervamento<br>Grenze<br>Yield Stress<br>Ultimate strength<br>Rp 0,2%<br>N/mm2 | Resistenza<br>Zugfestigkeit<br>Tensile strength<br>Resistance à traction<br>Rm<br>N/mm2 | Allungamento<br>Bruchdehnung<br>Elongation<br>Allongement<br>AS<br>E2<br>% | Strizione<br>Bruchdehnung<br>Reduction of area<br>Striction<br>Z<br>RA<br>% | Resistenza<br>Kerbschlagenergie<br>Impact Value<br>Resilience<br>°C | Durezza<br>Härte<br>Hardness<br>HB |
|---------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|----|------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------|-----------------------------------------------------------------------------|---------------------------------------------------------------------|------------------------------------|
| Valori richiesti 1<br>Anforderungen/Conditions<br>Values/conditions | min                                                                                                    |    |                                                                                                | 380                                                                            | -                                                                              | 585<br>730                                                                              | -                                                                          | 20                                                                          | -                                                                   | 187<br>220                         |
| 10,00                                                               | 20                                                                                                     | L  | 490                                                                                            |                                                                                |                                                                                | 670                                                                                     | 29                                                                         | 33                                                                          | 69                                                                  | 190                                |

1) Lunghezza/Altezza, Querschnitt/Höhe, Toleranz/Längentoleranz

### Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata:<br>Schmelze/Heat<br>Coulée | 0,080 min<br>0,150 max | 1,00 | 1,00 | 11,50<br>13,50 | 0,50 | 0,040 | 0,030 |  |  |  |  |  |  |  |  |  |  |
|------------------------------------|------------------------|------|------|----------------|------|-------|-------|--|--|--|--|--|--|--|--|--|--|
| C %                                | Si %                   | Mn % | Cr % | Ni %           | P %  | S %   |       |  |  |  |  |  |  |  |  |  |  |
| 236784                             | 0,141                  | 0,37 | 0,72 | 12,37          | 0,34 | 0,020 | 0,030 |  |  |  |  |  |  |  |  |  |  |

The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1, 4.3 by TÜV and LLOYD'S

29 LUG. 2004  
DOUGLAS CHERO Spa  
Quality Assurance .....  
P.C. STEFANI VITTORIO  
Sign: .....

COPIA CONFORME ALL' ORIGINALE  
ACCIAIERIE VALBRUNA S.P.A.  
FABRILE DI CORMANO

Bolzano, 23/10/03  
Mod. 581.006

Il collaudatore di stabilimento  
der Werkstatte/Inspector/Inspector  
S. P. Pin

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2325/101

|                                                                                                 |                                                                                    |                                                                                                                                                                                                                                                          |                                                                                                                             |                                                                                                                                  |                                                                                                           |
|-------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
|                 |                                                                                    | <b>ULTRASONIC EXAMINATION<br/>REPORT</b>                                                                                                                                                                                                                 |                                                                                                                             | No.: 009C/05-UT<br>Sheet: 1/2                                                                                                    |                                                                                                           |
| <b>Customer</b><br>KLAUS UNION ARMATUREN INTERNATIONAL<br>for LURGI OEL GAS CHEMIE GMBH         |                                                                                    |                                                                                                                                                                                                                                                          | <b>Order</b> HH-02535-01<br>Lurgi P.O: 4569247-000/1.69690/136                                                              |                                                                                                                                  | <b>Our Ref.</b><br>04.0572                                                                                |
| <b>Object</b><br>TESTS CARRIED OUT ON RAW BODIES AND BONNETS                                    |                                                                                    |                                                                                                                                                                                                                                                          |                                                                                                                             |                                                                                                                                  | <b>Quantity</b><br>100%                                                                                   |
| <b>Procedure No.</b><br>D.C. 125 Rev. 2                                                         |                                                                                    | <b>Customer Specifications</b><br>/                                                                                                                                                                                                                      |                                                                                                                             | <b>Items of Order</b><br>See sheet 2/2                                                                                           | <b>Material</b><br>ASTM A182/F22                                                                          |
| <b>Q.C.P.</b><br>PED-0003/05<br>Rev.2                                                           | <b>Stage</b><br>9                                                                  | <b>Drawing</b><br>DOUGLAS CHERO                                                                                                                                                                                                                          | <b>Items of Drawing</b><br>10 - 11                                                                                          | <b>Component Temperature °C</b><br>ROOM TEMP.                                                                                    |                                                                                                           |
| <b>Specifications</b><br>ASME V: ASME SA 388<br>ASME B16.34                                     |                                                                                    | <b>Surface conditions</b><br><input checked="" type="checkbox"/> Forged <input checked="" type="checkbox"/> Sandblasted <input type="checkbox"/> As rolled<br><input type="checkbox"/> Machined <input type="checkbox"/> Welded <input type="checkbox"/> |                                                                                                                             |                                                                                                                                  |                                                                                                           |
| <b>Instrument</b><br>Manufacturer SIRIO<br>Type RP 3000<br>Serial Nr. 9293                      |                                                                                    |                                                                                                                                                                                                                                                          | <b>Control Technique</b><br><input checked="" type="checkbox"/> Impulse Echo<br><input checked="" type="checkbox"/> Contact |                                                                                                                                  | <b>Material Conditions</b><br><input type="checkbox"/> Before PWHT<br><input type="checkbox"/> After PWHT |
| <b>Reference Standard</b><br><input checked="" type="checkbox"/> V1 <input type="checkbox"/> V2 |                                                                                    | <b>Calibration Block Nr.</b><br>/                                                                                                                                                                                                                        |                                                                                                                             | <b>Coupler</b><br><input type="checkbox"/> Water <input checked="" type="checkbox"/> Oil <input type="checkbox"/> Glycerin paste |                                                                                                           |
| <b>Transducers</b>                                                                              |                                                                                    |                                                                                                                                                                                                                                                          |                                                                                                                             |                                                                                                                                  |                                                                                                           |
| <b>Probes position</b>                                                                          | 1                                                                                  | 2                                                                                                                                                                                                                                                        | 3                                                                                                                           | 4                                                                                                                                | 5                                                                                                         |
| <b>Type of probe</b>                                                                            | SN 10-4M                                                                           |                                                                                                                                                                                                                                                          |                                                                                                                             |                                                                                                                                  |                                                                                                           |
| <b>Probe number</b>                                                                             | /                                                                                  |                                                                                                                                                                                                                                                          |                                                                                                                             |                                                                                                                                  |                                                                                                           |
| <b>Manufacturer</b>                                                                             | SIRIO                                                                              |                                                                                                                                                                                                                                                          |                                                                                                                             |                                                                                                                                  |                                                                                                           |
| <b>Dimension (mm)</b>                                                                           | 10                                                                                 |                                                                                                                                                                                                                                                          |                                                                                                                             |                                                                                                                                  |                                                                                                           |
| <b>Frequency (Mhz)</b>                                                                          | 4                                                                                  |                                                                                                                                                                                                                                                          |                                                                                                                             |                                                                                                                                  |                                                                                                           |
| <b>Decibel used</b>                                                                             | 56+64                                                                              |                                                                                                                                                                                                                                                          |                                                                                                                             |                                                                                                                                  |                                                                                                           |
| <b>Type of wave</b>                                                                             | <input checked="" type="checkbox"/> Longitudinal<br><input type="checkbox"/> Shear | <input checked="" type="checkbox"/> Longitudinal<br><input type="checkbox"/> Shear                                                                                                                                                                       | <input checked="" type="checkbox"/> Longitudinal<br><input type="checkbox"/> Shear                                          | <input checked="" type="checkbox"/> Longitudinal<br><input type="checkbox"/> Shear                                               | <input checked="" type="checkbox"/> Longitudinal<br><input type="checkbox"/> Shear                        |
| <b>Methods</b>                                                                                  |                                                                                    | <b>Acceptance Criteria</b>                                                                                                                                                                                                                               |                                                                                                                             |                                                                                                                                  |                                                                                                           |
| <input checked="" type="checkbox"/> Back reflection                                             |                                                                                    | According to D.C. Procedure 125 Rev.0 ( Longitudinal wave probe 10% )                                                                                                                                                                                    |                                                                                                                             |                                                                                                                                  |                                                                                                           |
| <input type="checkbox"/> D.A.C.                                                                 |                                                                                    | According to D.C. Procedure 125 Rev.0                                                                                                                                                                                                                    |                                                                                                                             |                                                                                                                                  |                                                                                                           |
| <input type="checkbox"/> A.V.G.                                                                 |                                                                                    | According to D.C. Procedure 125 Rev.0                                                                                                                                                                                                                    |                                                                                                                             |                                                                                                                                  |                                                                                                           |
| <b>Primary Reference Reflector</b>                                                              |                                                                                    | <b>(*) Reportable indications</b>                                                                                                                                                                                                                        |                                                                                                                             |                                                                                                                                  |                                                                                                           |
| Flat bottom hole <input type="checkbox"/>                                                       |                                                                                    | /                                                                                                                                                                                                                                                        |                                                                                                                             |                                                                                                                                  |                                                                                                           |
| Bottom wall <input checked="" type="checkbox"/>                                                 |                                                                                    |                                                                                                                                                                                                                                                          |                                                                                                                             |                                                                                                                                  |                                                                                                           |
| Notch type <input type="checkbox"/>                                                             |                                                                                    |                                                                                                                                                                                                                                                          |                                                                                                                             |                                                                                                                                  |                                                                                                           |
| <b>RESULTS</b>                                                                                  |                                                                                    |                                                                                                                                                                                                                                                          |                                                                                                                             |                                                                                                                                  |                                                                                                           |
| <input type="checkbox"/> Reportable indications (*)                                             |                                                                                    | <input checked="" type="checkbox"/> No reportable indications                                                                                                                                                                                            |                                                                                                                             | <input checked="" type="checkbox"/> Accepted                                                                                     |                                                                                                           |
|                                                                                                 |                                                                                    |                                                                                                                                                                                                                                                          |                                                                                                                             | <input type="checkbox"/> Non conforming                                                                                          |                                                                                                           |
|                                                                                                 |                                                                                    |                                                                                                                                                                                                                                                          |                                                                                                                             | <input type="checkbox"/> Rejected                                                                                                |                                                                                                           |
| <b>EXAMINATION PERFORMED BY</b>                                                                 |                                                                                    | <b>APPROVED BY</b>                                                                                                                                                                                                                                       |                                                                                                                             | <b>CUSTOMER INSPECTOR</b>                                                                                                        |                                                                                                           |
| DOUGLAS-CHERO S.p.A.<br>Quality Control<br>CREDALI STEFANO                                      |                                                                                    |                                                                                                                                                                                                                                                          |                                                                                                                             |                                                                                                                                  |                                                                                                           |
| <b>LEVEL:</b><br>II° SNT-TC-1A                                                                  |                                                                                    | <b>LEVEL:</b>                                                                                                                                                                                                                                            |                                                                                                                             | <b>DATE:</b><br>31/01/2005                                                                                                       |                                                                                                           |



# ULTRASONIC EXAMINATION REPORT

No.: 009C/05-UT

Sheet: 2/2

## LIST OF ITEMS

| ITEM | IDENT No.       | DESCRIPTION                                                           | SIZE | Q.TY | Q.TY<br>tested |
|------|-----------------|-----------------------------------------------------------------------|------|------|----------------|
| 040  | V481-BW<br>5,56 | GLOBE VALVE c.1500C RB BB BW Sch.160 -<br>Seat+Disk Stell. [ TRIM 5 ] | 3/4" | 1    | 1+1            |
| 050  | V481-BW<br>6,35 | GLOBE VALVE c.1500C RB BB BW Sch.160 -<br>Seat+Disk Stell. [ TRIM 5 ] | 1"   | 1    | 1+1            |
|      |                 |                                                                       |      |      |                |

DOUGLAS-CHERO S.p.A.  
Quality Control  
CREDALI STEFANO



# MAGNETOSCOPIC INSPECTION CERTIFICATE

No.: 019C/05-MT

Sheet: 1/2

|                                                                                                          |  |                                                    |                                                                              |                                                    |                           |                                                   |  |                                        |                                       |                   |  |                    |  |  |  |
|----------------------------------------------------------------------------------------------------------|--|----------------------------------------------------|------------------------------------------------------------------------------|----------------------------------------------------|---------------------------|---------------------------------------------------|--|----------------------------------------|---------------------------------------|-------------------|--|--------------------|--|--|--|
| Customer:<br><b>KLAUS UNION ARMATUREN INTERNATIONAL for<br/>LURGI OEL GAS CHEMIE GMBH</b>                |  |                                                    | Order:<br>Lurgi P.O.: <b>HH-02535-01<br/>4569247-000 /<br/>1.69690 / 136</b> |                                                    | Job:<br><b>04.0572</b>    |                                                   |  |                                        |                                       |                   |  |                    |  |  |  |
| Object:<br><b>TEST CARRIED OUT ON WORKED BODY / BONNET<br/>SEE ATTACHED SHEET FOR VALVES DESCRIPTION</b> |  |                                                    |                                                                              |                                                    | Quantity:<br><b>100 %</b> |                                                   |  |                                        |                                       |                   |  |                    |  |  |  |
| Procedure No.<br><b>212 Rev.2</b>                                                                        |  | Customer Specification<br><b>ASME B16.34 PAR.8</b> |                                                                              | Item of Order<br><b>SEE SHEET 2/2<br/>ATTACHED</b> |                           | Material<br><b>ASTM A182/F22</b>                  |  | Q.C.P.<br><b>PED-0003/05<br/>Rev.2</b> |                                       | Stage<br><b>9</b> |  |                    |  |  |  |
| Drawing:<br><b>DOUGLAS CHERO</b>                                                                         |  | Item of Drawing:<br><b>10 - 11</b>                 |                                                                              | Test Temperature:<br><b>ROOM TEMPERATURE</b>       |                           | Surface Condition:<br><b>BLASTING - MACHINING</b> |  |                                        |                                       |                   |  |                    |  |  |  |
| <b>YOKE</b>                                                                                              |  | <b>ELECTRODS</b>                                   |                                                                              | <b>COIL</b>                                        |                           | <b>SING.CONDUCTOR</b>                             |  |                                        |                                       |                   |  |                    |  |  |  |
| Tr. Mark <b>SILVER YOKE</b>                                                                              |  | Tr. Mark                                           |                                                                              | Curr. Type                                         |                           | Tr. Mark                                          |  |                                        |                                       |                   |  |                    |  |  |  |
| Curr.Type <b>AC - DC</b>                                                                                 |  | Curr.Type                                          |                                                                              | Ampers Turn                                        |                           | Curr.Type                                         |  |                                        |                                       |                   |  |                    |  |  |  |
|                                                                                                          |  | Intensity                                          |                                                                              | Diameter                                           |                           | Intensity                                         |  |                                        |                                       |                   |  |                    |  |  |  |
|                                                                                                          |  | Magn.Flux                                          |                                                                              | Magn. Flux                                         |                           | Magn.Flux                                         |  |                                        |                                       |                   |  |                    |  |  |  |
| Distance <b>100mm.</b>                                                                                   |  | Distance                                           |                                                                              | Distance                                           |                           | Distance                                          |  |                                        |                                       |                   |  |                    |  |  |  |
|                                                                                                          |  | <b>FLUORESCENT WET</b>                             |                                                                              |                                                    |                           | <b>DRY</b>                                        |  |                                        |                                       |                   |  |                    |  |  |  |
|                                                                                                          |  | TYPE                                               |                                                                              | BATCH                                              |                           | CERTIFIC.                                         |  | TYPE                                   |                                       | COLOUR            |  | CERTIFIC.          |  |  |  |
| TRADE MARK                                                                                               |  | MET-L-CHEK                                         |                                                                              |                                                    |                           |                                                   |  |                                        |                                       |                   |  |                    |  |  |  |
| CLEANER                                                                                                  |  | REMOVER NPU                                        |                                                                              |                                                    |                           |                                                   |  |                                        |                                       |                   |  |                    |  |  |  |
| MAGN. PARTICLES                                                                                          |  | FW1 - NDT                                          |                                                                              |                                                    |                           |                                                   |  |                                        |                                       |                   |  |                    |  |  |  |
| MAGN. POWDER                                                                                             |  | //                                                 |                                                                              |                                                    |                           |                                                   |  |                                        |                                       |                   |  |                    |  |  |  |
| DEMAGNETIZATION: NO                                                                                      |  |                                                    |                                                                              |                                                    |                           | <input checked="" type="checkbox"/> ACCEPTED      |  |                                        | <input type="checkbox"/> NOT ACCEPTED |                   |  |                    |  |  |  |
| REMARKS: ///                                                                                             |  |                                                    |                                                                              |                                                    |                           |                                                   |  |                                        |                                       |                   |  |                    |  |  |  |
| EXAMINATION PERFORMED BY                                                                                 |  |                                                    |                                                                              | APPROVED BY                                        |                           |                                                   |  | CUSTOMER INSPECTOR                     |                                       |                   |  | CUSTOMER INSPECTOR |  |  |  |
| <b>DOUGLAS-CHERO S.p.A.</b><br>Quality Control<br><b>CREDALI STEFANO</b>                                 |  |                                                    |                                                                              |                                                    |                           |                                                   |  |                                        |                                       |                   |  |                    |  |  |  |
| LEVEL:<br><b>II° SNT-TC-1A &amp; EN 473</b>                                                              |  |                                                    |                                                                              | LEVEL:                                             |                           |                                                   |  | DATE:<br><b>2102/2005</b>              |                                       |                   |  |                    |  |  |  |



# MAGNETOSCOPIC INSPECTION CERTIFICATE

No.: 019C/05-MT

Sheet: 2/2

## LIST OF ITEMS

| ITEM | IDENT NO.       | DESCRIPTION                                                           | SIZE | Q.TY | Q.TY<br>Tested |
|------|-----------------|-----------------------------------------------------------------------|------|------|----------------|
| 040  | V481-BW<br>5,56 | GLOBE VALVE c.1500C RB BB BW Sch.160 -<br>Seat+Disk Stell. [ TRIM 5 ] | 3/4" | 1    | 1+1            |
| 050  | V481-BW<br>6,35 | GLOBE VALVE c.1500C RB BB BW Sch.160 -<br>Seat+Disk Stell. [ TRIM 5 ] | 1"   | 1    | 1+1            |
|      |                 |                                                                       |      |      |                |

DOUGLAS-CHERO S.p.A.  
Quality Control  
CREDAL STEFANO

**Abnahmeprüfzeugnis DIN EN 10204 - 3.1B**  
Inspection certificateBesteller:  
Customer:**Lurgi Öl Gas Chemie GmbH, D-60295 Frankfurt**Bestell-Nr.:  
Order no.:**Lurgi Job - No.: 69690-10**  
**Lurgi OGC PO.-No.: 4569247-000 to -001/1.69690/136**

Project Name :

**2nd Zagros Methanol Plant - Iran**Auftrag-Nr.:  
Job no.:**HH - 02535- 01**

Lieferumfang / range:

| Pos   | Stck.<br>pcs. | Gegenstand<br>object                                                           | DN | PN      | Werkstoff<br>material | Bemerkung<br>comment        |
|-------|---------------|--------------------------------------------------------------------------------|----|---------|-----------------------|-----------------------------|
| 00050 | 1             | Regulating Globe Valve<br>RB BB BW Sch. 160<br>BW 6,35<br>Seat and Disk Stell. | 1" | Cl.1500 | A182/F22 C.3          | Valve Ident - No.: " V481 " |

Auslegung + Prüfung nach  
Design and tests acc. ToAPI 602 - BS EN ISO 15761, API 598 / BS EN 12266-1  
ASME B16.34 - B16.25 - B16.11 - B1.20.1Sicht- und Funktionsprüfung:  
visual and functional test:

o.k.

Festigkeits-/Dichtheitsprüfung:  
strength-/tightness-test:

*Festigkeit / shell test* = 388 bar Wasser / water (60 sec)  
*Dichtheit Sitz / seat* = 285 bar Wasser / water (60 sec)  
*Rückdichtung / backseat* = 285 bar Wasser / water (60 sec)  
*Dichtheit Sitz / seat* = 6 bar Luft / air (60 sec)

Prüfungsergebnis:  
result:ohne Beanstandung !  
no complaint !Bochum, den 28.02.2005 - WG **KLAUS UNION** GmbH & Co. KG

Werksachverständiger:

Manufacturer's authorized inspector: Walter Glass

Anlage: Dokumentation gemäß Material-Dokumentationsdeckblatt  
enclosure Documentation acc. to material cover sheet



Lurgi OGC PO,- No.: 4569247 - 000 to -001/ 1.69690 / 136

Project Name: 2nd Zagros Methanol Plant - Iran

|                  |                 |
|------------------|-----------------|
| Datum / Date     | 25.02.2005      |
| Seite / Page     | 1               |
| Sachbearbeiter   | W. Glass        |
| Person in charge | <i>W. Glass</i> |

# Bonomi s.r.l

## STAMPAGGIO A CALDO DELL'ACCIAIO

23861 CESANA BRIANZA (Lo) Via Carlo Porta, 8  
☎ 031/656798 ☎ 031/657597



Partita I.V.A. 02418370132  
R.I. Lecco N. 15934  
R.E.A. Lecco N. 288236

002612900

TEST CERTIFICATE N° 040501  
CERTIFICATO DI COLLAUDO  
3.1B-AS-TO- SECONDO  
UNI EN 10204  
DATA: 23/07/2004

Spett.le Ditta  
DOUGLAS CHERO Spa.  
Loc. Pradaglie  
29013 CARPANETO P.NO (Pc)

Mod. 28/1

|                                                         |                      |                                     |                        |                                                             |                                                     |                            |                           |                   |       |        |        |
|---------------------------------------------------------|----------------------|-------------------------------------|------------------------|-------------------------------------------------------------|-----------------------------------------------------|----------------------------|---------------------------|-------------------|-------|--------|--------|
| CUSTOMER ORDER - ORDINE CLIENTE                         |                      | P.O.                                | DOCUMENTO DI TRASPORTO |                                                             | INVOICE-FATTURA                                     |                            |                           |                   |       |        |        |
| 241217 pos. 2                                           |                      |                                     | 187 del 14/07/2004     |                                                             |                                                     |                            |                           |                   |       |        |        |
| DESCRIPTION OF PARTICULAR - DESCRIZIONE DEL PARTICOLARE |                      |                                     |                        | TYPE AND MATERIAL SPECIFICATIONS-TIPO E SPECIFICA MATERIALE |                                                     |                            |                           |                   |       |        |        |
| BODY                                                    |                      |                                     |                        | ASTM A182 F22                                               |                                                     |                            |                           |                   |       |        |        |
| NUMERO COLATA<br>HEAT NUMBER                            |                      | CHEMICAL ANALYSIS - ANALISI CHIMICA |                        |                                                             |                                                     |                            |                           |                   |       |        |        |
| 2A409227                                                |                      | C                                   | SI                     | MN                                                          | P                                                   | S                          | CU                        | CR                | NI    | MO     | V      |
| STELL. MILL.<br>ACCIAIERIA                              |                      | 0.150                               | 0.150                  | 0.504                                                       | 0.009                                               | 0.015                      | 0.078                     | 2.256             | 0.038 | 0.9876 | 0.0111 |
| SIDERPOTENZA Spa                                        |                      | AL                                  | SN                     |                                                             |                                                     |                            |                           |                   |       |        |        |
| ST.M. CERT. N.<br>CERT. ACC. N.                         |                      | 0.0302                              | 0.0048                 |                                                             |                                                     |                            |                           |                   |       |        |        |
| HS 246                                                  |                      |                                     |                        |                                                             |                                                     |                            |                           |                   |       |        |        |
| HEAT CODE ON<br>FORGING                                 | DISEGNO DEL FORGIATO | QUANTITY QUANTITA'                  |                        | MECHANICAL PROPERTIES - CARATTERISTICHE MECCANICHE          |                                                     |                            |                           |                   |       |        |        |
| BAV                                                     | N6/9S                | 193                                 |                        | YIELD<br>STRENGTH P.S.I.<br>INTERVAL<br>N/mm <sup>2</sup>   | TENS.<br>STRENGTH P.S.I.<br>ROTT. N/mm <sup>2</sup> | ELONG<br>2" 50<br>ALLUNG % | RED OF AREA<br>% CONTRAZ. | H.B.              |       |        |        |
| IMPACT VALUE -RESILIENZA                                |                      |                                     |                        | 473                                                         | 594                                                 | 27,60                      | 75,40                     | 193<br>190<br>190 |       |        |        |
| HEAT TREATMENT - TRATTAMENTO TERMICO                    |                      |                                     |                        |                                                             |                                                     |                            |                           |                   |       |        |        |
| Normalizing H.T. 970° C.<br>Tempering 680° C.           |                      |                                     |                        |                                                             |                                                     |                            |                           |                   |       |        |        |

### REMARKS

- 1) The result of chemical analysis is a true and correct copy of the mill certificate issued, by the manufacturer of the steel employed, or by the laboratory which has determined it.  
I risultati delle analisi chimiche è la corretta trascrizione del certificato di colata emesso dall'acciaieria o dal laboratorio che li ha rilevati.
- 2) The material or components shipped under the above order number did not come in direct contact with mercury or any of its components; or with any mercury containing devices employing a single boundary of containment, during the manufacturing process inspection or storage.  
Il materiale o i particolari spediti per questi ordini non sono mai venuti a contatto diretto con mercurio o con elementi contenenti mercurio durante la fase di lavorazione, controllo o immagazzinamento.

I certify these tests to be correct as  
contained in the records of the company  
certifico che tutti i dati sono corretti  
e uguali a quelli registrati presso Bonomi

28 LUG. 2004  
DOUGLAS CHERO Spa

Quality Assurance .....  
P.C. STEFANI VITTORIO  
Sign. ....

QA OFFICE  
UFFICIO QUALITA'

Bucca Rosalba



**CERTIFICATO DI  
COLLAUDO DOPO T.T.  
IN ACCORDO EN 10204-3.1.B**

DOCUMENTO  
DOCUMENT

DATA  
DATE

5138

13/07/04

| CLIENTE / Customer | N.DdT | DATA /<br>Date | MATERIALE /<br>Material | SPESS.MAX /<br>thickness | RICHIESTE /<br>Request |
|--------------------|-------|----------------|-------------------------|--------------------------|------------------------|
| 0732 / BONOMI SRL  | 172   | 06/07/2004     | F22 Cl 3                | 70                       | 156/207 HB             |

| Pezzo/<br>Plece | N. disegno/<br>Drawing | Ordina/<br>Order | Commessa/<br>Commision | N. colata/<br>Heat | N. Pz.<br>Trattati /<br>N° Worked<br>Place | PESO<br>KG /<br>Weight | N°PZ<br>prova /<br>N°Test<br>Place | DUREZZE<br>RILEVATE<br>/ Hardness | Car   |
|-----------------|------------------------|------------------|------------------------|--------------------|--------------------------------------------|------------------------|------------------------------------|-----------------------------------|-------|
| CORPI           | N6/9S                  |                  | BAV                    | 2A409227           | 220                                        | 1060                   |                                    | HB 197                            | 26341 |

**Bonomi srl**  
UFFICIO QUALITA'  
Firma \_\_\_\_\_  
Data 13/07/04

**LAVORAZIONE E/O TRATTAMENTO TERMICO RICHIESTO / HEAT TREATMENT REQUEST**

| Cod.<br>TT | Descrizione/<br>Description                                      | T.Pari.<br>°C | T Salita<br>h | T. Perm.<br>°C | T Perm<br>h | Raffredd/<br>Cool | Impianto/<br>Ofen | Specifiche/<br>Detailed | Altre Richieste/<br>Other Requests: |
|------------|------------------------------------------------------------------|---------------|---------------|----------------|-------------|-------------------|-------------------|-------------------------|-------------------------------------|
| TD<br>R    | NORMALIZZAZIONE /<br>Normalizing<br><br>RINVENIMENTO / Tempering |               |               | 970 ✓<br>680 ✓ | 1,5<br>3    | ARIA<br>ARIA      | 9<br>1            | TAB.IL03                |                                     |

**DOUGLAS CHERO Spa**

Quality Assurance .....

P.C. STEFANO VITTORIO

Note / Notes:

Sign \_\_\_\_\_

*Sprefa s.r.l.*  
Giulio Bonaschini



| Scheda n°  | Data  | Revisione | Chi archivia |
|------------|-------|-----------|--------------|
| S-Pq07/1-1 | 01/02 | 0         | RSA          |

# Acciaierie Valbruna S.p.A.



CERTIFICATO DI COLLAUDO  
ABNAHMEPRUEFZEUGNIS  
INSPECTION CERTIFICATE  
CERTIFICAT DE RECEPTION  
EN 10204, 3.1.B

36100 VICENZA (Italia) - Viale della scienza, 25 z.l.

Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

Clienti / destinataria/Purchaser/Client  
ARCOSS SNC DEI F.LLI ASSOLARI  
VIA LEVATA N.19/A  
24068-SERATE (BG)-BG

Produttore: STABILIMENTO DI BOLZANO  
Hersteller/Hersteller producer

Avviso di Spedizione: *4206/1603*  
Lieferungs-/Packung Anst.

Ordine nr: ORD.TEL  
Bestell-/Vorderbestellnummer

Certificato nr: MEST134329/2004/  
Prüfung/Test/Exam

Conferma ordine nr: MI04006026  
Werk-/Our Order/Nr.

Marchio di Fabbrica:  
Zeichen des Lieferanten  
Trade mark  
Style de l'usine producteur



Oggetto Prove: - Ricolto lavorabile Pelato  
Prüfungsbefund/Item inspected/Finishage

Tipo di Elaborazione: E+AOD  
Erzeugnisbezeichnung/Meßing process/Mode of elaboration

Punzone del Collaudatore:  
Stempel des Werksachverständigen  
Inspector's stamp/Stamp of the Assessor

Specifiche:  
Anforderungen / Requirements / Exigences

VALBRUNA 2002 410 OBSOLE  
ASME (1) SA479 2001 S41000 A (1)  
ASTM A479 2001 S41000 A  
SEC.II PTA 2001 EDITION  
Chemical analysis only.

ASTM A182 2002 S41000 (2)  
EN 10088-3 95 1.4006 A

ASME (1) SA182 2001 S41000 CLASS2 (M)  
ASTM A276 2000A S41000 A  
EN 10272 2000 1.4006 A

(1) SEC.II PTA 2001 EDITION

Qualità: 410  
Werkstoff/Grade/Qualität

Marca: VAL1

Punzonatura: 410  
Kennzeichnung/Marking/Markage

| Pos. nr.<br>Pos. nr.<br>Nr. da posto | Oggetto<br>Object<br>Description | Dimensioni - mm<br>Abmessungen<br>Dimension | Tolleranza<br>Tolerance<br>Tolerance | Lunghezza - mm<br>Länge<br>Length | Colata<br>Schmelze<br>Cast | Pezzi<br>Stückzahl<br>Pieces | Peso - KG<br>Gewicht<br>Weight | Lotto nr.<br>Losnr.<br>Lot nr. |
|--------------------------------------|----------------------------------|---------------------------------------------|--------------------------------------|-----------------------------------|----------------------------|------------------------------|--------------------------------|--------------------------------|
| 0030                                 | Tondo                            | 32,000                                      | K12-MIN                              | 5000 / 5500                       | 237411                     | 1                            | 642,0                          | 335600480                      |

Sono state soddisfatte tutte le condizioni richieste  
Die gestellten Anforderungen sind i. Anlage erfüllt  
The material has been furnished in accordance with the requirements  
Le matériel a été livré conforme aux exigences

Controllo analitico: OK  
Verwerksamprüfung: spektralanalytisch durchgeführt  
Analytical testing performed: OK  
Contrôle analytique: satisfaisant

Controllo visivo e dimensionale: soddisfa le esigenze  
Besichtigung und Ausmessung ohne Beanstandung  
Visual inspection and dimensional check/satisfactory  
Contrôle visuel et dimensionnel: satisfaisant

| TEST                                                     | Prova/Probe<br>System/Experiment<br>Long. diam. Spec.<br>Ende Diam. Ende<br>Weld Diam. Weld<br>Long. diam. Spec.<br>mm | " C        | Snervamento<br>Biegezug<br>Tensile strength<br>Rp 0,2%<br>N/mm2 | Snervamento<br>Biegezug<br>Tensile strength<br>Rp 0,2%<br>N/mm2 | Resistenza<br>Zugfestigkeit<br>Tensile strength<br>Rm<br>N/mm2 | Allungamento<br>Bruchdehnung<br>Elongation<br>A5<br>% | E 4d<br>% | Strizione<br>Bruchdehnung<br>Reduction of area<br>Z<br>% | RA | Resistenza<br>Härte<br>Rockwell<br>HRC | Durezza<br>Härte<br>Rockwell<br>HRC |
|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|------------|-----------------------------------------------------------------|-----------------------------------------------------------------|----------------------------------------------------------------|-------------------------------------------------------|-----------|----------------------------------------------------------|----|----------------------------------------|-------------------------------------|
| Valori richiesti 1<br>Anforderungen 1<br>Values required |                                                                                                                        | min<br>max | 380                                                             | -                                                               | 585<br>730                                                     | -                                                     | 20        | -                                                        | 45 | -                                      | 167<br>220                          |
| A                                                        | 10.00                                                                                                                  | 20         | L                                                               | 458                                                             | 675                                                            | 30                                                    | 32        | 65                                                       | 65 |                                        | 205                                 |

1) L=Kugelhiebshärte, C=Kugelhärte, T=Temperaturabhängigkeit

## Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata / Guss<br>Schmelze/Cast | min 0,080<br>max 0,160 | 1,00 | 1,00 | 11,50<br>13,50 | 0,50 | 0,040 | 0,030 | - | - | - | - | - | - | - | - |
|--------------------------------|------------------------|------|------|----------------|------|-------|-------|---|---|---|---|---|---|---|---|
| C %                            | Si %                   | Mn % | Cr % | Ni %           | P %  | S %   |       |   |   |   |   |   |   |   |   |
| 237411                         | 0,139                  | 0,39 | 0,74 | 12,10          | 0,23 | 0,017 | 0,022 |   |   |   |   |   |   |   |   |

Made in Italy No welding or weld repair Material free from Mercury or radio-activity contamination  
The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1, 2, 4.3 by TÜV and LLOYD'S

DOUGLAS CHERO Spa

Quality Assurance  
P.C. STEFANO VITTORIO

Sign. *[Signature]*

COPIA CONFORME ALL' ORIGINALE  
ACCIAIERIE VALBRUNA S.P.A.  
FILIALE DI GORMANO

|                                  |                                                                                                                                   |                 |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-----------------|
| Bolzano, 08/06/04<br>Mod. JBLO04 | Il collaudatore di stabilimento / der Werksachverständige / Works inspector / L'agent d'usine<br>R. Cristofari <i>[Signature]</i> | Pagina - 1 di 1 |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-----------------|

*2007/11*

# MECCANICHE MORANDI s.r.l.

VITERIA • BULLONERIA SPECIALE A NORME - UNI - DIN - ASTM

21015 LONATE POZZOLO (VA) • Via Magenta, 27 • Tel. 0331.302.949 • Fax 0331.302.948  
E-mail: meccmorandi@libero.it Codice Fiscale e Partita IVA 01779110129

CERTIFICATO DI COLLAUDO  
Inspection certificate

26370

N°6126/DCH DATE-09.11.04

CLIENTE- DOUGLAS CHERO Spa  
Customer

ORDINE-242000  
Order

BOLLA CONSEGNA N-3658  
Delivery note

## DESCRIZIONE DEL MATERIALE

## MATERIAL DESCRIPTION

| Item | Quantity | Article              | Material                 | Heat n. |
|------|----------|----------------------|--------------------------|---------|
| 1    | 2000     | VITI TE. M 12 X 30,5 | B16<br>ASTM A 193/A 193M | A02869  |

## ANALISI CHIMICA

## CHEMICAL ANALYSIS

| %             | C     | Mn   | Si   | Cr   | Mo   | S     | P     | V    | Al    |
|---------------|-------|------|------|------|------|-------|-------|------|-------|
| REQUIRED min. | 0,36  | 0,45 | 0,15 | 0,80 | 0,50 |       |       | 0,25 |       |
| VALUE max.    | 0,47  | 0,70 | 0,35 | 1,15 | 0,65 | 0,040 | 0,035 | 0,35 | 0,015 |
| HEAT n.       | 0,415 | 0,57 | 0,26 | 0,98 | 0,60 | 0,003 | 0,007 | 0,28 | 0,008 |

## CARATTERISTICHE MECCANICHE

## MECHANICAL REQUIREMENTS

|               | Rm.     | Rp. (0,2) | A4   | Z.   | Hardness |
|---------------|---------|-----------|------|------|----------|
| REQUIRED min. | min.    | min.      | min. | min. | max      |
|               | 860 MPa | 725 MPa   | 18%  | 50%  | 35 HRC   |
| ACTUAL VALUE  | 987     | 912       | 20,6 | 59,5 | 31       |

## HEAT TREATMENT

Quenched at : 925°C to 954°C oil  
Tempering : 2 hours at 650°C min.

Visual and dimensional test = SATISFACTORY

This certificate has been tested in according with the specification included in your order.

- CERTIFICATE ACCORDING TO - EN 10204 3.1.B.

QUALITY CONTROL

15 NOV. 2004

DOUGLAS CHERO Spa

Quality Assurance .....  
P.C. STEFANO VITTORIO  
Sign. ....

MECCANICHE MORANDI s.r.l.  
Via Magenta n. 27  
21015 LONATE POZZOLO (VA)

26836

FAG. 1

**Evasi e Castelnuovo s.r.l.**

Via Caio Porta, 1 - 23861 CESANA BRIANZA (LC)  
 Tel. 031/85.59.38 - Fax 031/85.86.27  
 Cod. Fisc. e Part. IVA 00209790138  
 Reg. Soc. Trib. Lucco n. 5932 - C.C.I.A. 121373

Spett.  
 DOUGLAS CHERO SPA

LOC. PRADAGLIE  
 29013 CARPANETO PIACENTINO PC

**CERTIFICATO DI COLLAUDO/INSPECTION CERTIFICATE**  
**UNI EN 10204 3.1 B**

**SISTEMA QUALITA' CERTIFICATO UNI EN ISO 9001/2000**  
**QUALITY SYSTEM CERTIFIED UNI EN ISO 9001/2000**

|                            |            |
|----------------------------|------------|
| N.                         | DATA/DATE  |
| 000441                     | 27-11-2004 |
| D.D.T./DELIVERY NOTE<br>N. | DATA/DATE  |

| COLATA /HEAT N. | MATERIALE/MATERIAL | ACCIAIERIA/STEEL PLANT | QUANTITA'/ | DESCRIZIONE/DESCRIPTION |
|-----------------|--------------------|------------------------|------------|-------------------------|
| 414853          | F22                | ACC. VALBRUNA          | 288        | CORPO 4/9               |

**ANALISI CHIMICA / CHEMICAL ANALYSIS**

|       |       |       |       |       |       |    |       |    |    |    |    |
|-------|-------|-------|-------|-------|-------|----|-------|----|----|----|----|
| C     | Mn    | Si    | P     | S     | Cr    | Ni | Mo    | Ti | V  | Cu | Al |
| 0,090 | 0,450 | 0,410 | 0,024 | 0,003 | 2,220 |    | 0,910 |    |    |    |    |
| Sn    | Nb    | N     | Fe    | W     | Ta    | Co | Ca    | B  | Sb |    | CE |
|       |       |       |       |       |       |    |       |    |    |    |    |

**PROVE MECCANICHE/MECHANICAL TESTS**

| RS-YIELD<br>N./mm <sup>2</sup> | R-TENSILE<br>N./mm <sup>2</sup> | A%-ELONG | Z%-REDUCT |
|--------------------------------|---------------------------------|----------|-----------|
| 464,0                          | 623,0                           | 29,0     | 75,0      |

**IMPACT TEST - KV - J**

| TEST 1 | TEST 2 | TEST 3 | TEMP. °C |
|--------|--------|--------|----------|
|        |        |        |          |

| TRADE<br>MARK | HEAT<br>CODE | MATERIAL<br>CODE | MATERIAL<br>TYPE NR. | DWG |
|---------------|--------------|------------------|----------------------|-----|
| E.YO          |              |                  |                      |     |

**03 DIC. 2004**  
**DOUGLAS CHERO Spa**

Quality Assurance .....  
 P.C. STEFANI VITTORIO  
 Sign. ....

**TRATTAMENTO TERMICO / HEAT TREATMENT**

| DESCRIPTION     | HEATING °C | STAY TIME | COOLING    | HARDNESS |
|-----------------|------------|-----------|------------|----------|
| NORMALIZZAZIONE | 960        | 2,3       | ARIA CALMA |          |
| RINVENIMENTO    | 730        | 3,0       | ARIA CALMA |          |

- 1) The result of chemical analysis is a true and correct copy of the mill certificate issued by the manufacturer of the steel employed, or by the laboratory which has determined it.  
 Il risultato delle analisi chimiche è la corretta trascrizione del certificato di colata messo dall'acciaieria o del laboratorio che li ha rilevati
- 2) Visual and dimensional control satisfactory.  
 Controlli visivi e dimensionali soddisfacenti.
- 3) Results of test affected are in conformance with order's specifications.  
 I risultati delle prove eseguite sono conformi alle specifiche richieste.
- 4) We confirm that materials used for the manufacture of supplied products are in conformance with the Directive 97/23/CE (PED), in particular with annex 1 par. 4 "Materials".  
 Confermiamo che i materiali usati per la stampa dei prodotti forniti sono conformi alla Direttiva 97/23/CE (PED) e particolarmente all'allegato I paragrafo 4 "Materiali".

APPROVATO/APPROVED

COLLAUDATORE/INSPECTOR

EMESSO/ISSUED

**EVASI E CASTELNUOVO s.r.l.**  
**STAMPERIA IN FERRA E ACCIAIO**

TEST REPORT - RELEVÉ DE CONTROLE  
EN 10204, 2.2

**Acciaierie**  
**Valbruna S.p.A.**

35100 VICENZA (Italia) - Viale della scienza, 25 z.1.

Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4.

Cliente / Kunden / Paragonat:  
INOX MECC S.A.S. DI BELLEBONO F. & C.  
VIA CORTENOVA  
24050 - CIVIDATE AL PIANO (BG) - BG

Produzione: ACCIAIERIE VALBRUNA S.P.A.  
Herstellung / Fabrication

Oggetto Prova: - Ricotto (favorabile Trattato)  
Prüfungszustand / Versuchsbedingungen

Avviso di Spedizione: A-VI03031911  
Versand-/Transportauftrag

Ordine nr: 18/05/03  
Bestell-/Auftragnummer

Tipo di Elaborazione: E+AQD  
Herstellungsumformung / Prozesskette

Certificato nr: MEST059325/2003/  
Prüf-/Zertifikatnr.

Conferma ordine nr: M103003762  
Bestätigungsauftrag

Marchio di Fabbrica:  
Zeichen des Unternehmens  
Trade mark  
Signe de l'usine productrice



Funzione del Collaudatore:  
Beauftragter des Werksachverständigen  
Inspector / Le représentant de l'inspecteur

Specifiche:  
Anforderungen / Requirements / Edigissen

VALBRUNA 2002 410 A,CF 0  
ASTM A182 2000C S41000 CLASS2 (1)  
EN 10272 2000 1.4006 A,CF 0  
(1) SEG. II PTA 2001 EDITION  
(1) C" "bei Analyse only and mech. properties (for ASTM A182M)

AISI 410 0  
ASTM A276 2000A S41000 A,CF 0

ASME (1) SA182 2001 S41000 CLASS2 (1)  
EN 10088-3 95 1.4006 A,CF 0

Qualità: T.410  
Qualitätsklasse

Marca: VAL1  
Herstell-/Markenbezeichnung

Punzonatura:  
Kornstrukturbezeichnung

| Pos. Nr.<br>Part. Nr.<br>N. di posto | Oggetto<br>Gegegenstand<br>Product description<br>Descr. di produtt. | Dimensioni - mm<br>Abmessungen<br>Dimension<br>Dimension | Tolleranza<br>Toleranz<br>Allowance<br>Tolerance | Lunghezza - mm<br>Länge<br>Length<br>Longueur | Colata<br>Schmelze<br>Heat<br>Casting | Pezzi<br>Stückzahl<br>Pieces<br>Pièces | Peso -<br>Gewicht<br>Weight<br>Poids | Lotto nr.<br>Losn.<br>Lot<br>Lieu |
|--------------------------------------|----------------------------------------------------------------------|----------------------------------------------------------|--------------------------------------------------|-----------------------------------------------|---------------------------------------|----------------------------------------|--------------------------------------|-----------------------------------|
| 0050                                 | Tendo                                                                | 18,000                                                   | H9-MIN                                           | 3900 / 4000                                   | 238784                                |                                        | 4911,0                               | 319601780                         |

Sono state soddisfatte tutte le condizioni richieste  
Die genannten Anforderungen sind erfüllt, Anlage 2020  
The material has been furnished in accordance with the requirements  
Le matériel a été livré conforme aux exigences

| TEST                                                               | Prova/Anno<br>Bewertung/Ergebnis<br>Longueur/Qualité<br>Cote/Qualité<br>Long./Qualité<br>Länge/Qualität<br>mm | °C | Forz.<br>Sogget.<br>Force<br>Zugkraft<br>N | Snervamento<br>Grenz<br>Yield Point<br>Unit strength<br>Rp 0,2%<br>N/mm2 | Snervamento<br>Grenz<br>Yield Point<br>Unit strength<br>Rp 0,2%<br>N/mm2 | Resistenza<br>Elastizität<br>Tensile strength<br>Resistance à l'écartement<br>Rm<br>N/mm2 | Allungamento<br>Bruchdehnung<br>Elongation<br>Allongement<br>A5<br>% | E2"<br>% | Stirazione<br>Bruchdehnung<br>Elongation<br>Streckung<br>Z<br>% | RA<br>% | Resistenza<br>Härte<br>Resistance<br>Härte<br>HRC | Durezza<br>HRC<br>HRC |
|--------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|----|--------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|----------------------------------------------------------------------|----------|-----------------------------------------------------------------|---------|---------------------------------------------------|-----------------------|
| Valori richiesti 1<br>Anforderungen/Regelung<br>Values<br>Vorgaben | min                                                                                                           |    |                                            | 380                                                                      |                                                                          | 585                                                                                       | -                                                                    | 18       | -                                                               | 45      | -                                                 | 167                   |
| max                                                                |                                                                                                               |    |                                            |                                                                          |                                                                          | 630                                                                                       |                                                                      |          |                                                                 |         |                                                   | 229                   |
| 10                                                                 | 20                                                                                                            | L  | 620                                        |                                                                          |                                                                          | 695                                                                                       | 20                                                                   | 23       | 68                                                              | 69      |                                                   | 209                   |

1) - Lunghezza minima, Corrente nominale, T-Temperatura massima

## Analisi chimica

Chemische Zusammensetzung / Chemical Analysis / Analyse chimique

| Colata:<br>Schmelze/Heat<br>Casting | 0,050 min<br>0,150 max | 1,00 | 1,00 | 11,50<br>13,50 | 0,50 | 0,040 | 0,030 | - | - | - | - | - | - | - |
|-------------------------------------|------------------------|------|------|----------------|------|-------|-------|---|---|---|---|---|---|---|
| 238784                              | C %                    | Si % | Mn % | Cr %           | Ni % | P %   | S %   |   |   |   |   |   |   |   |
|                                     | 0,141                  | 0,37 | 0,72 | 12,37          | 0,34 | 0,020 | 0,030 |   |   |   |   |   |   |   |

The Quality Management System is Certified acc. Pressure Equipment Directive (97/23/EC) Annex 1, 2, 4.2 by TÜV and LLOYD'S

17 GIU. 2004

DOUGLAS CHERO Spa

Quality Assurance .....  
P.C. STEFANI VITTORIO  
Ripet. ....

1 - MAR. 2004

Vicenza, 06/11/03  
Aut./00012

Il collaudatore di stabilimento / der Werksachverständigen / Works Inspector / L'agent d'usine

M. Rizzotto

Pagina - 1 di 1



|                                                                                                 |                                                                                    |                                                                                                                                                                                                                                                          |                                                                                    |                                                                                                                                  |                                                                                    |
|-------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
|                 |                                                                                    | <b>ULTRASONIC EXAMINATION<br/>REPORT</b>                                                                                                                                                                                                                 |                                                                                    | No.: 009C/05-UT<br>Sheet: 1/2                                                                                                    |                                                                                    |
| <b>Customer</b><br>KLAUS UNION ARMATUREN INTERNATIONAL<br>for LURGI OEL GAS CHEMIE GMBH         |                                                                                    |                                                                                                                                                                                                                                                          | <b>Order</b> HH-02535-01<br>Lurgi P.O: 4569247-000/1.69690/136                     |                                                                                                                                  | <b>Our Ref.</b><br>04.0572                                                         |
| <b>Object</b><br>TESTS CARRIED OUT ON RAW BODIES AND BONNETS                                    |                                                                                    |                                                                                                                                                                                                                                                          |                                                                                    |                                                                                                                                  | <b>Quantity</b><br>100%                                                            |
| <b>Procedure No.</b><br>D.C. 125 Rev. 2                                                         |                                                                                    | <b>Customer Specifications</b><br>/                                                                                                                                                                                                                      |                                                                                    | <b>Items of Order</b><br>See sheet 2/2                                                                                           | <b>Material</b><br>ASTM A182/F22                                                   |
| <b>Q.C.P.</b><br>PED-0003/05<br>Rev.2                                                           | <b>Stage</b><br>9                                                                  | <b>Drawing</b><br>DOUGLAS CHERO                                                                                                                                                                                                                          | <b>Items of Drawing</b><br>10 - 11                                                 | <b>Component Temperature °C</b><br>ROOM TEMP.                                                                                    |                                                                                    |
| <b>Specifications</b><br>ASME V: ASME SA 388<br>ASME B16.34                                     |                                                                                    | <b>Surface conditions</b><br><input checked="" type="checkbox"/> Forged <input checked="" type="checkbox"/> Sandblasted <input type="checkbox"/> As rolled<br><input type="checkbox"/> Machined <input type="checkbox"/> Welded <input type="checkbox"/> |                                                                                    |                                                                                                                                  |                                                                                    |
| <b>Instrument</b><br>Manufacturer SIRIO<br>Type RP 3000<br>Serial Nr. 9293                      |                                                                                    | <b>Control Technique</b><br><input checked="" type="checkbox"/> Impulse Echo<br><input checked="" type="checkbox"/> Contact                                                                                                                              |                                                                                    | <b>Material Conditions</b><br><input type="checkbox"/> Before PWHT<br><input type="checkbox"/> After PWHT                        |                                                                                    |
| <b>Reference Standard</b><br><input checked="" type="checkbox"/> V1 <input type="checkbox"/> V2 |                                                                                    | <b>Calibration Block Nr.</b><br>/                                                                                                                                                                                                                        |                                                                                    | <b>Coupler</b><br><input type="checkbox"/> Water <input checked="" type="checkbox"/> Oil <input type="checkbox"/> Glycerin paste |                                                                                    |
| <b>Transducers</b>                                                                              |                                                                                    |                                                                                                                                                                                                                                                          |                                                                                    |                                                                                                                                  |                                                                                    |
| <b>Probes position</b>                                                                          | 1                                                                                  | 2                                                                                                                                                                                                                                                        | 3                                                                                  | 4                                                                                                                                | 5                                                                                  |
| <b>Type of probe</b>                                                                            | SN 10-4M                                                                           |                                                                                                                                                                                                                                                          |                                                                                    |                                                                                                                                  |                                                                                    |
| <b>Probe number</b>                                                                             | /                                                                                  |                                                                                                                                                                                                                                                          |                                                                                    |                                                                                                                                  |                                                                                    |
| <b>Manufacturer</b>                                                                             | SIRIO                                                                              |                                                                                                                                                                                                                                                          |                                                                                    |                                                                                                                                  |                                                                                    |
| <b>Dimension (mm)</b>                                                                           | 10                                                                                 |                                                                                                                                                                                                                                                          |                                                                                    |                                                                                                                                  |                                                                                    |
| <b>Frequency (Mhz)</b>                                                                          | 4                                                                                  |                                                                                                                                                                                                                                                          |                                                                                    |                                                                                                                                  |                                                                                    |
| <b>Decibel used</b>                                                                             | 56+64                                                                              |                                                                                                                                                                                                                                                          |                                                                                    |                                                                                                                                  |                                                                                    |
| <b>Type of wave</b>                                                                             | <input checked="" type="checkbox"/> Longitudinal<br><input type="checkbox"/> Shear | <input checked="" type="checkbox"/> Longitudinal<br><input type="checkbox"/> Shear                                                                                                                                                                       | <input checked="" type="checkbox"/> Longitudinal<br><input type="checkbox"/> Shear | <input checked="" type="checkbox"/> Longitudinal<br><input type="checkbox"/> Shear                                               | <input checked="" type="checkbox"/> Longitudinal<br><input type="checkbox"/> Shear |
| <b>Methods</b>                                                                                  |                                                                                    | <b>Acceptance Criteria</b>                                                                                                                                                                                                                               |                                                                                    |                                                                                                                                  |                                                                                    |
| <input checked="" type="checkbox"/> Back reflection                                             |                                                                                    | According to D.C. Procedure 125 Rev.0 ( Longitudinal wave probe 10% )                                                                                                                                                                                    |                                                                                    |                                                                                                                                  |                                                                                    |
| <input type="checkbox"/> D.A.C.                                                                 |                                                                                    | According to D.C. Procedure 125 Rev.0                                                                                                                                                                                                                    |                                                                                    |                                                                                                                                  |                                                                                    |
| <input type="checkbox"/> A.V.G.                                                                 |                                                                                    | According to D.C. Procedure 125 Rev.0                                                                                                                                                                                                                    |                                                                                    |                                                                                                                                  |                                                                                    |
| <b>Primary Reference Reflector</b>                                                              |                                                                                    | <b>(*) Reportable Indications</b>                                                                                                                                                                                                                        |                                                                                    |                                                                                                                                  |                                                                                    |
| Flat bottom hole <input type="checkbox"/>                                                       |                                                                                    | /                                                                                                                                                                                                                                                        |                                                                                    |                                                                                                                                  |                                                                                    |
| Bottom wall <input checked="" type="checkbox"/>                                                 |                                                                                    |                                                                                                                                                                                                                                                          |                                                                                    |                                                                                                                                  |                                                                                    |
| Notch type <input type="checkbox"/>                                                             |                                                                                    |                                                                                                                                                                                                                                                          |                                                                                    |                                                                                                                                  |                                                                                    |
| <b>RESULTS</b>                                                                                  |                                                                                    |                                                                                                                                                                                                                                                          |                                                                                    |                                                                                                                                  |                                                                                    |
| <input type="checkbox"/> Reportable indications (*)                                             | <input checked="" type="checkbox"/> No reportable indications                      | <input checked="" type="checkbox"/> Accepted                                                                                                                                                                                                             | <input type="checkbox"/> Non conforming                                            | <input type="checkbox"/> Rejected                                                                                                |                                                                                    |
| <b>EXAMINATION PERFORMED BY</b>                                                                 | <b>APPROVED BY</b>                                                                 | <b>CUSTOMER INSPECTOR</b>                                                                                                                                                                                                                                | <b>CUSTOMER INSPECTOR</b>                                                          |                                                                                                                                  |                                                                                    |
| DOUGLAS-CHERO S.p.A.<br>Quality Control<br>CREDALI STEFANO                                      |                                                                                    |                                                                                                                                                                                                                                                          |                                                                                    |                                                                                                                                  |                                                                                    |
| <b>LEVEL:</b><br>II° SNT-TC-1A                                                                  | <b>LEVEL:</b>                                                                      | <b>DATE:</b><br>31/01/2005                                                                                                                                                                                                                               |                                                                                    |                                                                                                                                  |                                                                                    |



# ULTRASONIC EXAMINATION REPORT

No.: 009C/05-UT

Sheet: 2/2

## LIST OF ITEMS

| ITEM | IDENT No.       | DESCRIPTION                                                           | SIZE | Q.TY | Q.TY tested |
|------|-----------------|-----------------------------------------------------------------------|------|------|-------------|
| 040  | V481-BW<br>5,56 | GLOBE VALVE c.1500C RB BB BW Sch.160 -<br>Seat+Disk Stell. [ TRIM 5 ] | 3/4" | 1    | 1+1         |
| 050  | V481-BW<br>6,35 | GLOBE VALVE c.1500C RB BB BW Sch.160 -<br>Seat+Disk Stell. [ TRIM 5 ] | 1"   | 1    | 1+1         |
|      |                 |                                                                       |      |      |             |

DOUGLAS-CHERO S.p.A.  
Quality Control  
CREDALI STEFANO



# MAGNETOSCOPIC INSPECTION CERTIFICATE

No.: 019C/05-MT

Sheet: 1/2

Customer:  
KLAUS UNION ARMATUREN INTERNATIONAL for  
LURGI OEL GAS CHEMIE GMBH

Order: HH-02535-01  
Lurgi P.O.: 4569247-000 /  
1.69690 / 136

Job:  
04.0572

Object:  
TEST CARRIED OUT ON WORKED BODY / BONNET  
SEE ATTACHED SHEET FOR VALVES DESCRIPTION

Quantity:  
100 %

|                            |                                             |                                            |                                            |                                |            |
|----------------------------|---------------------------------------------|--------------------------------------------|--------------------------------------------|--------------------------------|------------|
| Procedure No.<br>212 Rev.2 | Customer Specification<br>ASME B16.34 PAR.8 | Item of Order<br>SEE SHEET 2/2<br>ATTACHED | Material<br>ASTM A182/F22                  | Q.C.P.<br>PED-0003/05<br>Rev.2 | Stage<br>9 |
| Drawing:<br>DOUGLAS CHERO  | Item of Drawing:<br>10 - 11                 | Test Temperature:<br>ROOM TEMPERATURE      | Surface Condition:<br>BLASTING - MACHINING |                                |            |

| YOKE                    | ELECTRODS | COIL        | SING.CONDUCTOR |
|-------------------------|-----------|-------------|----------------|
| Tr. Mark<br>SILVER YOKE | Tr. Mark  | Curr. Type  | Tr. Mark       |
| Curr.Type<br>AC - DC    | Curr.Type | Ampers Turn | Curr.Type      |
|                         | Intensity | Diameter    | Intensity      |
|                         | Magn.Flux | Magn. Flux  | Magn.Flux      |
| Distance<br>100mm.      | Distance  | Distance    | Distance       |

|                 | FLUORESCENT WET |       |           | DRY  |        |           |
|-----------------|-----------------|-------|-----------|------|--------|-----------|
|                 | TYPE            | BATCH | CERTIFIC. | TYPE | COLOUR | CERTIFIC. |
| TRADE MARK      | MET-L-CHEK      |       |           |      |        |           |
| CLEANER         | REMOVER NPU     |       |           |      |        |           |
| MAGN. PARTICLES | FW1 - NDT       |       |           |      |        |           |
| MAGN. POWDER    | //              |       |           |      |        |           |

DEMAGNETIZATION: NO

☒ ACCEPTED☐ NOT ACCEPTED

REMARKS: ///

| EXAMINATION PERFORMED BY                                   | APPROVED BY | CUSTOMER INSPECTOR | CUSTOMER INSPECTOR |
|------------------------------------------------------------|-------------|--------------------|--------------------|
| DOUGLAS-CHERO S.p.A.<br>Quality Control<br>CREDALI STEFANO |             |                    |                    |
| LEVEL:<br>II° SNT-TC-1A & EN 473                           | LEVEL:      | DATE:<br>2102/2005 |                    |



# MAGNETOSCOPIC INSPECTION CERTIFICATE

No.: 019C/05-MT

Sheet: 2/2

## LIST OF ITEMS

| ITEM | IDENT NO.       | DESCRIPTION                                                           | SIZE | Q.TY | Q.TY<br>Tested |
|------|-----------------|-----------------------------------------------------------------------|------|------|----------------|
| 040  | V481-BW<br>5,56 | GLOBE VALVE c.1500C RB BB BW Sch.160 -<br>Seat+Disk Stell. [ TRIM 5 ] | 3/4" | 1    | 1+1            |
| 050  | V481-BW<br>6,35 | GLOBE VALVE c.1500C RB BB BW Sch.160 -<br>Seat+Disk Stell. [ TRIM 5 ] | 1"   | 1    | 1+1            |
|      |                 |                                                                       |      |      |                |

DOUGLAS-CHERO S.p.A.  
Quality Control  
CREDAL STEFANO